REPORT RESUMES

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MEDICAL LABORATORY ASSISTANT TEACHER EDUCATION INSTITUTE--PILOT PROGRAM. FINAL REPORT.

BY- COUCH, REX D.
NATIONAL COMMITTEE FOR CAREERS IN MEDICAL TECHNO.
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DESCRIPTORS- *TEACHER EDUCATION, *INSTITUTES (TRAINING PROGRAMS), PILOT PROJECTS, *MEDICAL LABORATORY ASSISTANTS, HEALTH OCCUPATIONS EDUCATION, PROGRAM DEVELOPMENT, CURRICULUM DEVELOPMENT, *PROGRAM EVALUATION, INTERDISCIPLINARY APPROACH, PROGRAM GUIDES,

AN INTERDISCIPLINARY GROUP COOPERATED IN PLANNING, CONDUCTING, AND EVALUATING A TEACHER EDUCATION INSTITUTE THAT WOULD OFFER THE OPPORTUNITY FOR TEACHER PARTICIPANTS TO IMPROVE THEIR TEACHING, PROVIDE AN EXPERIMENTAL APPROACH TO TEACHER TRAINING, AND SERVE AS A MODEL FOR OTHER TEACHER TRAINING INSTITUTES. BEHAVIORAL OBJECTIVES AND PARTICIPANT SELECTION CRITERIA WERE DEVELOPED AND THE UNIVERSITY OF TENNESSEE WAS SELECTED TO CONDUCT THE INSTITUTE. TWENTY-ONE TEACHERS PARTICIPATED IN THE 2-WEEK INSTITUTE WHICH COVERED FORMULATION OF OBJECTIVES, THE TEACHING ROLE OF THE MEDICAL TECHNOLOGIST, PSYCHOLOGICAL FACTORS OF TEACHING AND LEARNING, TEACHING METHODS AND TECHNIQUES, FUNDAMENTALS OF COMMUNICATIONS, GROUP DYNAMICS, OCCUPATIONAL ANALYSIS, LESSON PLANNING, AUDIOVISUAL INSTRUCTION, PROBLEMS OF THE DISADVANTAGED, AND EDUCATIONAL MEASUREMENT. THE EDUCATIONAL TESTING SERVICE, AN INDEPENDENT ORGANIZATION, EVALUATED THE INSTITUTE. IT WAS CONCLUDED THAT ON THE WHOLE THE NEEDS OF THE PARTICIPANTS WERE MET. HOWEVER, SOME EXPRESSED AN UNSATISFIED NEED FOR COURSE CONTENT FOR MEDICAL LABORATORY ASSISTANT PROGRAMS. PRACTICE TEACHING WAS THE MOST WORTHWHILE EXPERIENCE. VALUABLE SUBJECT MATTER AREAS WERE BEHAVIORAL OBJECTIVE FORMULATION, LESSON PLANNING, TEACHING STRATEGIES, AND THE USE OF VISUAL AIDS. APPENDIXES INCLUDE AN INSTITUTE ANNOUNCEMENT, SELECTION FORM, SELECTION CRITERIA REPORT, BIBLIOGRAPHY, LIST OF MATERIALS DISTRIBUTED, FORMS FOR EVALUATION OF TEACHER AND INSTITUTE, A LEARNING EXPERIENCES ANALYSIS FORM, AND THE EDUCATIONAL TESTING SERVICE REPORT. (JK)

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February 15, 1968

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office Of Education
Bureau of Research

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Final Report

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MEDICAL LABORATORY ASSISTANT TEACHER EDUCATION INSTITUTE -- PILOT PROGRAM

Rex D. Couch, M.D.

The National Committee for Careers in Medical Technology
in conjunction with
National Council on Medical Technology Education

Washington, D.C.

February 15, 1968

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
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1. SUMMARY OF PILOT PROGRAM

TITLE: Medical Laboratory Assistant Teacher Education Institute - Pilot Program

COOPERATING AGENCIES: National Committee for Careers in Medical Technology, Washington, D.C.
National Council on Medical Technology Education
Memphis, Tennessee

DURATION: April 17, 1967 to February 15, 1968
Pilot Institute, August 21 - September 1, 1967
University of Tennessee, Division of University Extension
Downtown Center, Memphis, Tennessee

OBJECTIVES: The purpose of this pilot program was to design a comprehensive plan for a Teacher Education Institute to upgrade and update present and potential instructors in health occupations education programs. A teacher education curriculum was developed, incorporating recognized teaching principles with new educational methods, media, and materials.

To test the plan, an initial pilot Teacher Education Institute was conducted for instructors of medical laboratory assistants to: (1) Develop confidence and competence in participants through involvement in new educational techniques and teaching practices, (2) Help the participants to realize that teacher education and development is a continuous process, and (3) Use accepted testing and observation techniques to determine the progress and development of the participants.

The plan and the pilot Institute were evaluated to establish a pattern adaptable to other Institutes in the health field. The work under this grant involved planning, implementation, and evaluation.

PLANNING: The plan brought together a group of education and health professionals with interest and experience in teacher education. The two committees that guided the pilot program were composed of pathologists, medical technologists, and educators. Along with project staff they:

1. Developed committee membership and roles.
2. Arranged for the Institute to be conducted by a host institution.

3. Prepared an announcement and application form, and established criteria for selecting participants to attend.

4. Designed objectives for the Institute participants, based on a chart showing the process of training.?

5. Approved a course outline and schedule prepared by the faculty at the university which would conduct the Institute.

6. Agreed to use an experimental evaluation process proposed by the Educational Testing Service.

7. Arranged for evaluations of the Institute by participants and faculty.

8. Evaluated each step of their work as plans proceeded.

9. Discussed and recommended future Institute possibilities.

10. Reviewed and accepted the final report on the pilot program.

IMPLEMENTATION: The Institute at the University of Tennessee, Division of University Extension, Downtown Center, Memphis, Tennessee, was conducted from August 21 through September 1, 1967. It was attended by 15 teachers of medical laboratory assistants who were paid stipends and travel expenses and also six non-stipend participants. The course was not for credit, but certificates were presented upon completion.

The course content included learning objectives, educational innovations and technology, educational career professional planning, the roles of a teacher, psychological factors in teaching and learning, teaching methods and techniques, communications and group dynamics in teaching and learning, lesson plans and sequence of teaching, audiovisual instruction, practice teaching, and testing and evaluation.

Material was presented through lectures, demonstrations, printed materials, audiovisuals, and individual assignments for participants. Classes were held from 9 a.m. to 5 p.m. for 10 days with some two-hour evening session.

The two full-time instructors who presented most of the material were assisted by an educational consultant, psychologist, and additional instructional resource people for presentations such as audiovisual instruction and a unit on training disadvantaged persons.

EVALUATION: An analysis of all evaluations showed that the pilot program was successful and that the initial plans carried over into the conduct of the model Institute and its effect on the participants. It is clear that specialists in the educational and scientific disciplines can work together to devise a program meeting the teacher training needs of a health specialty.

Such a program can be adapted for use in universities, colleges, hospitals or other teaching institutions in conducting teacher training programs in other health related fields. Using the proposals for this Institute, and suggestions resulting from it, there could be a variety of types of Institutes such as:

1. Institute in an acutal or simulated laboratory.
2. A follow-up Institute for these participants to concentrate on curriculum development and materials for the specialty field.
3. Longer Institutes with credit for more extended participation.
4. Workshops or conferences for multiple disciplines, involving persons from the medical health and educational fields.

The chief suggestions of the committees include: (1) that in future Institutes the focus be centered on what the student does rather than what the teacher does in the learning situation, (2) that emphasis be placed on new media for independent learning and (3) that available resources be allotted with high priority to program, facilities and faculty rather than for stipends for participants.

The Institute faculty, and probably some potential participants, should be included in the entire planning phase. This would mean early agreement with a host educational institution or arranging for some committee members who plan the curriculum to teach at the Institute.

It is also recommended that the objectives of the Institute should be stated in detail so that applicants will understand the aims of the course; i.e. that it is related to educational methods and not to curriculum for their specialty. However, instructors must have some familiarity with the educational level and work of the participants. Teaching techniques should have a direct relationship to the type of curriculum taught by participants. Opportunities should be provided for participants to exchange ideas.

The report writer should either attend all planning meetings or edit a report which is the responsibility of one person who has been involved with the entire project. A small group, rather than the entire planning committee, should be responsible for preparation of the final report.

II INTRODUCTION

When this pilot program was submitted to the Office of Education, there were approximately 150 schools in the United States, most established in recent years, training high school graduates for a minimum of 12 months to work as medical laboratory assistants. Although medical laboratory assistant instructors are educated at the college level and the majority have baccalaureate degrees, their training is heavily oriented in science and few have backgrounds in educational methodology. Therefore, there was need to provide a background so that these medical laboratory assistant instructors could be more effective in their training programs.

Objectives of Pilot Program

The objectives stated in the original proposal were:

1. To design a comprehensive plan for Teacher Education Institutes for the purpose of upgrading and updating present and potential instructors in health occupations education programs.
2. To develop a short term teacher education curriculum incorporating recognized teaching principles with new educational methods, media, and materials.
3. To test the plan which evolves with an initial pilot Institute for 16 medical laboratory assistant instructors.
    (a) To involve the participants in new educational techniques and teaching practices in order to develop confidence and competence in the instructor's teaching ability and interaction with students.
    (b) To help participants realize that teacher education and development in the medical laboratory field, as elsewhere, is a continuous process.

    (c) To investigate the progress and development of the participants, using accepted testing, observing and judgment techniques.

4. To evaluate the plan and pilot Institute with a view toward setting a pattern to be used in succeeding Institutes.

A comparison of these objectives in the initial proposal with those developed for the Institute (Page 11) indicates an evolution in the planning of objectives. Planners believed that all objectives should be stated consistently, in this case in behavioral terms.

In planning, conducting, and evaluating this Teacher Education Institute it was hoped that the following contribution would be made to education:

1. Offer the opportunity for participants to improve their qualifications for staffing health occupations education programs in the medical laboratory field.
2. Provide an experimental approach to teacher training to facilitate the upgrading of instructors.
3. Develop a comprehensive plan adaptable for use in other teacher training Institutes.

The work under this grant logically falls into three phases: Planning (by the National Advisory Committee and Planning and Curriculum Committee), Implementation, (holding a Teacher Education Institute to test the plan), and Evaluation, (of both the plan and the Institute). It was anticipated that from the pilot program recommendations would be made for other Institutes, suitable for teachers of medical laboratory assistants and other health occupations personnel.

The first four months of the grant period were spent in developing the plan, including the course of study, procedures, and methods to be used in evaluating the Institute's participants, instructional methods, and curriculum content. It was decided that the Institute would concentrate on teaching methods adhering to adequately prepared behavioral objectives.

To evaluate the success of the Institute, an independent testing organization, Educational Testing Service, was engaged to design and administer a pre-test and a post-test of those attending to show achievement and/or attitude change as a result of attending the Institute. Evaluations were also made by the National Advisory and Planning and Curriculum Committees, faculty at the Institute, and individuals who participated. A final evaluation of the overall project plan was also made by the project staff and committee members.

Committee Structure

Two committees were developed with some overlapping membership so that there would be continuity in the work.

The National Advisory Committee was composed of two pathologists, two medical technologists and two educators. Their role was to: (1) Lend leadership and guidance to the project as a whole, (2) Suggest uses for project Consultants, (3) Review and pass on the final report, and (4) Serve in any other capacity considered important by the committee.

The Planning and Curriculum Committee was the key group in developing the program. To provide for continuity in planning and transmitting ideas, three members of the advisory committee (one from each profession) also served on the Planning and Curriculum Committee. This committee was responsible for developing a comprehensive health occupations teacher education program. Its members were specifically charged with discussing and making decisions related to the comprehensive plan, the course content of the Institute, evaluation procedures, and the final report.

In addition, six Consultants who are medical laboratory specialists were appointed. They were kept informed of plans as they developed and were available for advice.

(See Appendix I - Committee Members and Consultants)

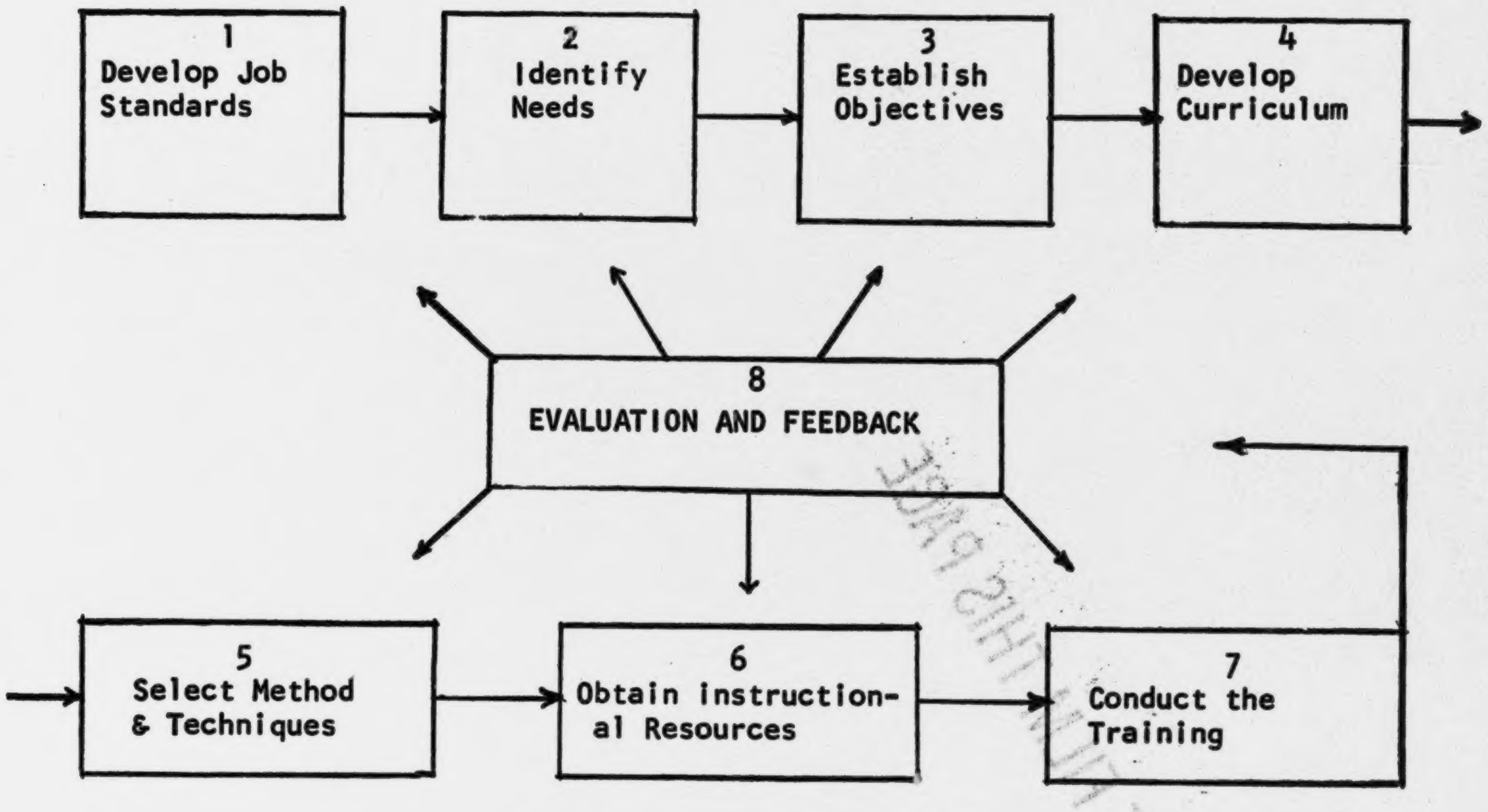
Planning

Preceding the Institute, members and staff:

- Developed both committees and defined their roles.
- Arranged for the Institute to be conducted by the University of Tennessee.
- Prepared an announcement and application form for the Institute, including mailing and processing. (See Appendix 2 - Institute Announcement and Selection Application.)
- Presented and accepted a flow chart showing the process of training. (See Illustration No.1, Page 6a)

Illustration No. 1

PROCESS OF TRAINING


1
Develop Job Standards
2
Identify Needs
3
Establish Objectives
4
Develop Curriculum
8
EVALUATION AND FEEDBACK
5
Select Method & Techniques
6
Obtain instructional Resources
7
Conduct the Training

The Process of Training represents the step by step procedures used by the Planning and Curriculum Committee in developing the Teacher Education Institute.

1/ The job standard is a description of the tasks that should be performed by the teacher in medical laboratory assistant programs. (Institute participant).

2/ Needs are identified by comparing the background and education of the Institute participants with the tasks assigned to the teacher of medical laboratory assistant programs as represented in block number 1.

3/ Learning objectives should be stated in attainable and measureable behavioral terms.

8/ Evaluation and feedback are part of all steps of the process and are never really completed.

- Established criteria for selecting Institute participants.

- Designed objectives for the Institute participants.

- Revised and accepted a course outline and schedule prepared by the Institute teaching staff designed to meet the behavioral objectives established by the Planning and Curriculum Committee.

- Selected participants, notified all applicants, and mailed information to those chosen prior to the Institute.

- Approved design and information for a certificate to be given for completing of the Institute.

- Selected a unique experimental evaluation process proposed by the Educational Testing Service, involving a pre- and post-Institute telephone interview instead of a paper and pencil evaluation.

- Organized instructional resources.

- Prepared classrooms, social activities, housing arrangements, etc. for Institute participants.

These accomplishments involved hours of work with some committee members assuming specific assignments between meetings. Followthrough on information and arrangements as well as conferences and work sessions with the Institute faculty were handled by the project staff. (See Appendix 3 - Schedule of Committee Meetings.)

At the last three meetings a retrospective look at all previous activities was taken in order to compare accomplishments with objectives. Evaluations from Institute staff, participants, and Educational Testing Service were analyzed, and individual committee members were assigned certain aspects of the program to evaluate and summarize. A preliminary draft of the final report was prepared, revised, and approved.

The committees also decided that a brief followup should be done within a few months to ascertain from participants the extent of changes in their teaching programs as a result of attending the Institute. (Not a part of this report.)

III TEACHER EDUCATION INSTITUTE

The pilot program implementing the plan was the two-week Teacher Education Institute at the University of Tennessee, Division of University Extension, Downtown Center, Memphis, from August 21 through September 1, 1967.

Participants

Announcements and applications were mailed to 175 persons and 63 were returned and processed. The grant provided funds for 16 participants to attend with stipends of $15 a day for ten days and round trip air coach transportation.

In establishing criteria for selection, the committees felt that the 16 participants should be broadly representative of the range of instructors already teaching or expected to teach medical laboratory assistants. (See Appendix 4 - Selection Criteria Report.)

The most important selection criteria for those receiving stipends were based on:

1. Number of years teaching in a medical laboratory assistant program. Preference was given to those who had taught for one, two, or three years, since it was felt that this would enhance the exchange of information and enrich the learning experience. Those with one year or less were given the first priority because their need for the Institute was considered the greatest.

2. Exposure to education courses and/or workshops. Preference was given to applicants with no previous record of attending education courses or workshops. They would be more likely to need the experience and to benefit from it.

3. Number of years of clinical laboratory experience. Preference was given to medical technologists with a range of four to seven years of laboratory experience.

These three criteria were the primary guides for selecting the participants and designating alternates. Selection was made on an anonymous basis after information from the applications was transferred to Royal McBee Keysort Cards. Geographic distribution and the type of school in which they had trained or were now teaching were considered, but were not prime factors in selection.

Since a minority of the teachers in the health field are men and since some laboratory assistant training is in Catholic hospitals, it was decided that at least two males and two teachers from Catholic religious communities offering laboratory assistant training should be included to represent the overall teacher population.

It should be noted that the final group did not entirely represent the primary selection criteria since six non-stipend participants were admitted on an availability basis. A profile of participants follows on Page 10, Illustration No. 2.

Participant-Developed Questionnaire

During the Institute, the participants developed a questionnaire to obtain a composite picture of themselves and the programs in which they taught. It was intended only as an information gathering device, but is of interest because those participating were teachers in medical laboratory assistant schools with total enrollment of 208 students, which is about 20 percent of the estimated 1,100 enrolled in such schools. The 208 students included 196 females and 12 males. Of these, 182 had completed at least high school or its equivalent and 25 had some college or other post high school education. Classes averaged 10.4 students with students averaging 21 years of age.

Seven of the 20 Institute participants listed teaching as their only duty, while eight were also assigned laboratory supervision and five stated that they did bench work as well. Their salaries ranged from $5,600 to $12,000, and averaged $7,795 a year.

Institute Staff

The Institute staff included a coordinator, two full-time instructors, an educational consultant, two medical laboratory assistant program specialists, and five instructional resource persons. (See Appendix 6 - Institute Staff.) The coordinator and full-time instructors were responsible for the entire Institute program; others served on a limited basis for specific purposes, as follows:

- The educational consultant (a member of the National Advisory Committee) had previously worked with medical laboratory personnel and helped to open the Institute, laying the foundation as set forth in the behavioral objectives.

- The two program specialists were medical technologists who spent a day orienting the participants to the special problems of training persons from disadvantaged socio-economic backgrounds. They are associated with the Laboratory Assistant Field Project, funded by the U.S. Department of Labor, which is determining ways to train the disadvantaged as laboratory assistants.

Illustration No. 2

PROFILE OF PARTICIPANTS
(Stipend and Non-Stipend)
(N = 21)

SEX	
Male	2
Female	19

MARITAL STATUS	
Single	9
Married	12

GEOGRAPHIC LOCATION	
Northeast	7
Southeast	10
North Central	1
South Central	3

AGE RANGE	
26-30	10
31-35	4
36-40	1
41-45	4
46-50	2

EDUCATION	
2 Year College	2
4 Year College	16
Masters Degree	2
Graduate Study	1

COLLEGE MAJOR	
Medical Technology	10
Zoology	2
Biology	3
Biology/Chemistry	2
Chemistry	2
Bacteriology	1
Bacteriology/Zoology	1

CLINICAL LAB EXPERIENCE	
2 and 3 Years	4
4 and 5 Years	7
6 and 7 Years	5
8 and 9 Years	1
10 plus	4

MLA TEACHING EXPERIENCE	
0 to less than 1 Year	3
1 Year to 2 Years	6
2 Years to 3 Years	6
3 Years	5
More than 3 Years	1

TYPE MLA PROGRAM	
Jr. or Community College	2
Vocational or Technical Institute	4
Large Hospital (Over 400)	4
Small Hospital (Under 400)	7
Armed Forces	1
VA Hospital	1
Allied Medical and Science	1
Department of Public Health	1

(See Appendix 5 - Institute Participants)

- The five resource persons contributed special knowledge to specific teaching tasks, such as the instructor and his job, psychological factors of teaching and learning, audiovisual demonstration, and interpersonal relationships.

Objectives of the Institute

These objectives for the Teacher Education Institute were developed by the Planning and Curriculum Committee.

PURPOSE -- to devise, conduct and evaluate a model teacher education program in order to provide:

1. Overall -- an efficient means of enhancing teaching in paramedical programs, and
2. Specifically -- technically competent medical laboratory personnel, who are instructors in medical laboratory assistant programs, with equally competent teaching skills.

FOCUS -- upon:

1. the participant as a TEACHER and
2. the objectives as a guide and measure of the participants' attainment.

OBJECTIVES --

Upon completion of the Institute the participant as a teacher of medical laboratory assistant students, should be able to:

I. Identify and relate his role as a TEACHER:

    A. Member of a profession (education)
    B. Manager (classroom, clinical affiliate, personal)
    C. Counselor (educational, personal, professional)
    D. Member of educational staff (dual role of teacher and supervisor)

II. State educational objectives in behavioral terms:

    A. Analyze the task to be learned
    B. Establish performance standards for his students

C. Formulate valid objectives

D. Identify, establish, justify and make use of selection criteria for course entry

III. Devise methods to measure continuously the progress toward attainment of objectives:

A. Verbal and oral performance tests

B. Observational techniques

IV. Plan, devise, and structure learning experiences:

A. Distinguish between teaching process and content

B. Organize subject matter

C. Determine sequence and schedule of curriculum

V. Identify, select, and implement the most effective strategy according to:

A. Level(s) of performance required

1. skill performance	(do)
2. verbal	(describe)
3. conceptual	(demonstrate understanding)

B. Conditions influencing learner performance
   1. ability level
   2. past experience
   3. expending of effort (motivation)

C. Tactics
   1. determine effective structural pattern(s) -- (presentation, individual study, interaction)
   2. determine appropriate media and resources

Institute Program

Applicants were first notified of selection on June 26. Additional materials which were sent to them by the Institute coordinator on August 4 included a copy of the Institute objectives; Robert F. Mager's book, "Preparing Instructional Objectives", to be read in advance, and information on arrangements, Institute facilities, and the city. It was suggested that they bring any notes, texts, outlines, curricula or other materials used in their own teaching programs.

The Sunday evening before the Institute began, a get-together for participants, Institute staff, and project staff enabled all to meet in an informal atmosphere.

Instructional Program and Schedule
August 21 - September 1, 1967

Monday, August 21

9:00 - 10:20	Orientation to Institute
10:40 - Noon	Writing Learning Objectives - Introduction
1:00 - 2:50	Purpose and Importance of Job - related Objectives 1. Performance Required 2. Teaching Too Little
3:10 - 5:00	Relative Importance of Objectives and Uses of Objectives
6:30 - 9:30	Career Professional Planning

Tuesday, August 22

9:00 - 10:20	Overview
10:40 - Noon	How to State Objectives 1. Description of Performance 2. Conditions of Performance 3. Standards 4. Examples
1:00 - 2:50	Continued Stating Objectives
3:10 - 5:00	Innovations in Education
6:30 - 9:30	Film - "A Multi-Faceted Approach to the Teaching of Botany" by Postlethwait

Wednesday, August 23

9:00 - 10:20	The Medical Technologist as a Teacher 1. Why Selected as a Teacher a. Outstanding as a Technologist b. Respect of Employer and Other Workers c. Interest in Imparting Knowledge and Skill to Others 2. Instruction versus Production a. Accurate Test Results b. Competent Laboratory Assistants

Plan of Operation and Expected Goals of Institute

1. Daily Schedule of Sessions
2. Leader - Group Participation
3. Basic Foundations for Teaching
4. Demonstration Lessons by Leaders
5. Return Demonstrations by Participants
6. Plan of Evaluation and Critiques (microfilm review)
7. Master Teachers in Terms of Knowledge, Skills, and Appreciation

10:40 - Noon

The Instructor and His Job as a:

1. Planner for Instruction
2. Student Motivator
3. Master Teacher
4. Group and Laboratory Manager
5. Student Counselor
6. Student Tester and Evaluator

1:00 - 2:50

Psychological Factors of Teaching and Learning

Film - "Controlling Behavior Through Reinforcement"

1. Interest
2. Teacher - Student Rapport
3. Laws of Learning
    a. Readiness
    b. Effect
    c. Exercise
4. Reinforcement

3:10 - 5:00

Introduction to Teaching Methods and Techniques

Film - "Shop Demonstration"

1. How Individuals Learn
2. Telling, Showing, and Teaching
3. Methods of Teaching
    a. Lecture
    b. Demonstration
    c. Illustration
    d. Discussion
    e. Conference
    f. Supervised Practice
    g. Directed Practice
    h. Supervised Study
    i. Reading Verbatum
    j. Testing

Thursday, August 24

9:00 - 10:20 Fundamentals of Communications
Record - "Listening" by Dr. Ralph Nichols
1. The Message
2. The Sender
3. The Channel
4. The Receiver

10:40 - Noon Group Interaction on Communications
Film - "Production 5118"
1. Identification of Problems in Communications
2. Possible Solutions to Communication Problems

1:00 - 2:50 Group Dynamics as Teaching and Learning Techniques
Film - "All I Need is a Conference"
1. The Conference
2. The Buzz Sessions
3. The Phillips-66 Plan
4. The Panel
5. The White House Technique
6. The Symposium
7. Role Playing

3:10 - 5:00 Use of Methods and Techniques of Teaching
1. Characteristics of Various Teaching Methods
2. Selection and Use of Appropriate Teaching Methods
3. Advantages and Limitations of each Method

Friday, August 25

9:00 - 10:20 Occupational Analysis and Planning for Instruction
1. Determining What Should be Taught
2. Systems Approach to Analysis
3. Occupational Analysis Techniques
4. Major Divisions of an Occupation
5. Sub-Units of Major Divisions
6. Relations of Knowledge to Performance Skills
7. Type of Lessons:
    - a. Theory
    - b. Skill
    - c. Calculation

10:40 - Noon	Division of a Lesson and Sequence of Teaching Steps. How to Instruct - Pre-Teaching Preparation 1. Motivations and Mental Preparation of Students 2. Presentation of Knowledge and/or Skills of the Lesson 3. Application of Knowledge or Skills 4. Follow-up or Testing Film - "Instructing the Worker on the Job"
1:00 - 2:50	Presentation and Demonstration on Audiovisual Instruction
3:10 - 5:00	Practice Session by Participants on Developing Teaching Aids
6:30 - 9:30	Continued Practice Session

Monday, August 28

9:00 - 10:20	Occupational Analysis and Planning for Instruction 1. Analyzing the Course 2. Selection of Content 3. Major Divisions 4. Identifying Instructional Units 5. The Lesson Plan
10:40 - Noon	Selection, Development, and Use of Audiovisual Teaching Media Film - "Using Audio and Visual Aids in Training" 1. Projected Teaching Aids a. Use of the Motion Picture b. Use of the Film Strip and Slides c. Use of Opaque Projections d. Use of Overhead Projections 2. Single Dimension Teaching Aids a. Posters b. Charts c. Printed Sheets and Materials 3. Three Dimension Teaching Aids a. Models b. Mock-ups
1:00 - 2:50	Selection of Topics and Work with Participants on Demonstration Lesson Plans
3:10 - 5:00	Special Problems of the Disadvantaged

6:30 - 9:30	Meeting with Laboratory Assistant Field Project Representatives
Tuesday, August 29	
9:00 - 5:00	Divide Group into Two Equal Sections for Practicum in Teaching and Constructive Critique
Wednesday, August 30	
9:00 - 5:00	Continued Practice Teaching
Thursday, August 31	
9:00 - 10:20	Interpersonal Relations Film - "Human Relations in Industry"
10:40 - Noon	Introduction to Education Measurement 1. Testing 2. Evaluation 3. Accuracy of Measurement 4. Determining Standards or Goals
1:00 - 2:50	Testing and Evaluation Continued 1. Qualities of a Good Test a. Validity b. Reliability c. Objectivity 2. Classification of Tests a. Traditional b. New Type - Short Answer
3:10 - 5:00	Interpreting Test Results 1. Test Norms, Mean, Median, and Mode 2. Changing Scores to Grades 3. Normal Probability Curve 4. Percentile Ranking 5. The Fallacy of Failure
Friday, September 1	
9:00 - 10:20	Questions, Problems, Instructors' Evaluation of Conference, Student Evaluation
10:40 - Noon	Closing Session - Certificates Awarded
	Adjournment

Method

It was decided that if participants were to be assisted in developing their own teaching in terms of behavioral objectives for their students, the Institute should be conducted with the same approach. With this goal in mind, the Planning and Curriculum Committee suggested that all learning areas should culminate in an activity where each participant would have the opportunity to demonstrate his achievement in that area.

The primary purpose of the time devoted to the areas of "Writing Learning Objectives" and "Career Professional Planning", the first two days of the Institute was to learn through participation. A self-analysis of a concept of teaching-learning was required of each participant. Through this technique each was encouraged to respond to structured questions and was directed to think in terms of his influence on the learning process. Time was devoted to developing the requirements of a well-conceived plan for learning, the foundation of which should be well-defined learning objectives stated in behavioral terms. In order for participants to realize the effort involved in writing well-defined learning objectives in terms of behavior, approximately two-thirds of the time was devoted to the actual writing of behavioral objectives.

A session on "Career Professional Planning" was conducted entirely by discussion. The total effort was to get the participant to THINK in terms of his own plans for future growth.

Approximately 70 percent of the time during the first two days was devoted to trainee participation; the balance was used for the presentation of ideas primarily via lecture.

In the remainder of the Institute, an attempt was made to maintain the balance between theory and practice in content, between student activity and lecture-demonstration in methodology. In the sessions devoted to practice teaching and to the use and preparation of visual aids, the participants were the most active. Microteaching was used as a learning technique during these practice teaching sessions. In the sessions devoted to learning theory, testing, fundamental teaching procedures, etc., the presentation was usually a lecture supported by films or records. Participants were supplied with supplementary printed instructional materials by the Institute faculty. Appendix 8 lists the titles.

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IV. FINDINGS AND ANALYSIS

Evaluations by Institute Participants

The participants were given several opportunities to evaluate various aspects of the Institute:

1. In an informal group meeting at the final session
2. A form evaluating the instructors which was filled out the last day
3. Evaluation of the Institute in general and their learning experiences on forms mailed to them after the Institute
4. Individual telephone interviews conducted by the Educational Testing Service. (In their evaluations, they were also asked to offer suggestions and possible changes that might improve future programs.)

Their responses to the first three evaluation methods are reported below, with the Educational Testing Service evaluation discussed separately.

In a number of different ways the students indicated general satisfaction with the Institute as it drew to a close. The presentations on planning and method (including the use of audiovisuals) were seen as particularly helpful. The participants indicated they felt that a different distribution of time devoted to various topics would be valuable, and that more time should have been given to testing and preparation of audiovisual materials, and that some orientation of the program specifically to medical laboratory assistants would have been helpful.

General Perceptions of Participants on the Institute

At the final session of the Institute, the participants were asked by the instructors, on an informal basis and as a group, to give their reactions in terms of the topics they felt were of particular import. The topics were written on the blackboard as they were mentioned and consensus was sought before an item was included in the final list. While no formal attempt was made to have the participants rank the items, the instructors felt that those mentioned first held a priority in the participants' perceptions. The items mentioned as positive were:

1. Behavioral objectives
2. Recognition of the need for teacher education
3. Identification of a "master" instructor
4. Results of good lesson planning
5. Communications
6. Application of group dynamics
7. Proper use and preparation of visual aids
8. Need for step-by-step analysis of performance
9. Organization of material
10. Practical experience of demonstration and feedback

The need for more time on construction of tests and preparing teaching materials was suggested.

Evaluations of Instructors

Each participant was given a form on which to rate the two principal instructors as poor, fair, good, or excellent on 23 items related to teaching. (See Appendix 9 - Student Evaluation of the Teacher.) Nineteen participants, including non-stipend as well as those with stipends, completed the form. The combined results for the two instructors tended to be quite positive with good and excellent ratings predominating. In the areas of planning, knowledge, personal contact with students, and appearance, the largest number of ratings were excellent.

Institute Evaluation Forms

After the Institute, participants were mailed two different types of evaluation forms: (1) Institute Evaluation and (2) Learning Experiences Analysis.

The Institute Evaluation Form (See Appendix 10) gave them the opportunity to state which portion(s) of the Institute they found (1) most helpful, (2) least helpful, (3) given too much or too little time, and (4) unnecessary. They were also asked to list possible additional subjects and to make suggestions for future Institutes. The responses did not lend themselves to strict quantitative analysis but several significant points seemed to emerge.

- The participants recognized that the Institute was about teaching and therefore the staff would be primarily expert in instruction rather than the technical specialty of the participants. However, they seemed to feel that the instructors in such an Institute should be abe to help somewhat in the transfer of teaching principles to the particular subject field involved. In their suggestions they made frequent mention of the need for examples from the field of medical laboratory assistants. They also suggested that instructors observe medical laboratory assistants in action, to show how teaching techniques could be used in medical laboratory assistant teaching situations. It was also felt that the instructors should recognize the high educational level of medical technologists and conduct the course accordingly.

- The portions of the Institute as presented which they saw as most helpful were the sessions dealing with writing objectives, lesson planning, audiovisual instruction, exposure to other instructors, and practice teaching. However, they felt that too much time was spent on the first three and insufficient time was devoted to audiovisuals, particularly the use of equipment.

- There was nearly unanimous agreement that too little time was spent in the area of testing and that the presentation came too late in the Institute schedule.

- There was considerable support for spending time on curriculum planning for a medical laboratory assistant course.

- The session on group dynamics was mentioned by several as being least helpful or as an item to be eliminated.

- Several participants felt the need for some time to be spent on problems of admission, counseling, and other student personnel services.

- Several suggestions were made that because of expense and travel time, Institutes in the future might be offered on a state or regional basis.

- A definite theme emerged that in spite of suggestions for change and specific criticisms, the participants found great value in the Institute. This conclusion is derived from remarks made on the Institute Evaluation Form as well as the learning experience form discussed below.

On the other form mailed, Learning Experiences Analysis, (See Appendix 11.) they were asked to mention as many as three learning experiences from the Institute that had affected them. The participants were also asked to mention whether they felt the experiences would affect knowledge, skills, attitudes, or behavior the most.

From the 19 respondents, five phases of the Institute were mentioned five or more times. Lesson planning was mentioned by 12, writing objectives and the use of audiovisual materials each by 10, exposure to other medical laboratory assistant instructors by six, and practice teaching by five.

Eighty-three responses were made to the type of change the respondents felt resulted from these experiences. (More than one category of learning experience could be checked.) Improved skills were checked most often and new knowledge was second, followed by changed attitude and changed behavior. If the skills, attitudes, and behavior represent real rather than reported changes, the Institute would have to be considered a success.

Faculty Evaluation

The faculty evaluation was an objective one in terms of what the participants learned as the Institue progressed. As a pilot program for a limited time, the program planned for the Institute probably provided the most good for the number selected. The faculty believed that it was highly successful and that the participants were well selected. They felt that the committee planned a very comprehensive program but it may have left too little time for participant involvement in the devlopment of written material, for discussion, and practice of group leadership techniques.

In keeping with the original objective to instruct individuals in the behavioral level of learning, the faculty felt that more time should have been devoted to individual practice in:

1. Development of instructional objectives
2. Development of teaching aids
3. Practice teaching
4. Group leadership techniques
5. Development of all types of test questions

There was evidence that participants enjoyed and benefited from those areas in which they engaged actively; they were cooperative but somewhat indifferent about the areas in which they were passively engaged.

The highlight of the seminar, the faculty felt, was the preparation for and the teaching of demonstration lessons by each participant. The instructors commented that the lessons prepared by these medical laboratory assistant instructors were considerably above average compared to those of teachers with whom they had previously worked.

The use of microtaping of teaching performances was new to all and well received by those who were recorded. A critique is far more meaningful when participants can see themselves as others see and hear them. Unfortunately, however, limited time made it possible to tape only half of the demonstration lessons with no time for replay except during coffee breaks.

Three things made the Institute itself a success, according to the faculty: (1) Selectivity of participants, (2) Cohesiveness of the group attending, and (3) Content of the program.

In discussing cohesiveness, an observation was made. When individuals unknown to one another assemble for an Institute, a special effort has to be made before the group fully recognizes its commonalties goals and interests. They cannot function well as a group until this happens. Even then, there are a few of the group whose interests and personalities are more similar and three or four sub-groups then form. Training is probably more effective when this cohesiveness is established early and continues to build as the training program progresses -- yet ceasing to grow short of the individuals' loss of identity.

This is much the way in which the medical laboratory assistant group formed and functioned. They worked well as a group in the sessions and they engaged in social activities as a group, although in the latter, the development of sub-groups was more evident.

Beginning with the presentation on behavioral objectives, the group quickly realized common goals and objectives. At the same time each participant saw the need for taking a new look at his own program when he returned home. Everything that took place afterward, then, had some meaning as the instructors unfolded each block of learning with the group.

This was possible because of efforts by the staff to manage the learning activities and set the proper mood conducive to efficient learning, combined with the sincere desire on the part of most participants to acquire knowledge and develop ideas which would help them become more effective teachers. Without this support between teacher and learner, the productiveness of the Institute would not have been so great.

Educational Testing Service Evaluation

Educational Testing Service, an independent organization, was engaged to plan and conduct an evaluation of Institute participants, to discover the background of each in education, and to determine changes in attitudes in terms of their feelings about the practical aspects of what they learned.

Educational Testing Service devised a unique telephone interview technique for this purpose. When participants were notified of acceptance in July they were told that Educational Testing Service would make a pre-Institute telephone interview and were asked to be candid and openly responsive when called.

The general approach of the half hour interviews during the pre-test was conversational with non-directive questions centering around the behavioral objectives of the Institute. It concerned their past experience in teaching, their feelings about it, and what they expected or felt they needed from the Institute.

A final interview was conducted by telephone five weeks after the conclusion of the Institute. Covering a wider range than the first interview, it involved discussion of the Institute itself, kinds of experiences since attending, and how their teaching and concept of their role as a teacher had changed. While the pre-test included the 16 stipend participants, one was unable to attend the Institute, so only 15 participated in the post-test interview.

A full report by Educational Testing Service on this evaluation is included as Appendix 12. In summary, their principal conclusions were that the Institute program on the whole met the needs of participants, except for omission of medical laboratory assistant course content; the practice teaching was the most worthwhile experience, with other strong points being formulation of behavioral objectives, lesson planning, teaching strategies, and use of visual aids. The Institute should have spent more time on how to select and screen students, evaluation of instructional outcomes, and counseling.

Some specific suggestions to improve future Institutes made by participants as elicited by the Educational Testing Service interviews included the following:

- Instructional staff should include persons familiar with medical laboratory technology.
- Training should deal more specifically with teaching techniques for use in the medical laboratory field.
- Objectives should be clarified and described in more detail for the information of prospective applicants so that they will know what to expect.
- Participants should be encouraged to bring to future Institutes samples of their own lesson plans, instructional aids, tests, rating forms, etc., for use in teaching practicums and for exchanging ideas.

- Planned sessions should be built into the Institute program to facilitate interchanges of experiences and ideas among participants, so they can find out what others are doing in their own class programs.

- More time should be spent on the teaching practicum, with video taping and review of each person's presentation, and also on tests and measurements.

- Less time might be spent on objectives and on specialized or expensive types of audiovisual equipment (although reactions on audiovisual aids differed sharply).

- More consideration should be given to the sequence of topics and to the problem of "peaking" of interest to avoid a letdown after certain high points in presentations.

The evaluation by Educational Testing Service gave the committee members a tool with which to work in a broad evaluation of the Institute. It should be noted that it was not a part of the pilot Institute but is a phase of the entire pilot program. It is useful in planning changes for future Institutes but should not be considered as a part of subsequent Institutes.

Evaluation of the Overall Plan

One objective stated in the original proposal was an evaluation of the comprehensive plan for developing a Teacher Education Institute, aside from the preceding evaluation of the two-week pilot Institute.

The plan involved bringing together a group of education and health professionals with interest and experience in teacher education to develop a short teacher education curriculum, test it, and evaluate the results.

It is evident that specialists in the educational and scientific disciplines can jointly devise a comprehensive program that meets the teacher training needs of the technical specialty represented. Based on the experience gained, a program developed by such an interdisciplinary group can be adapted for use by universities, colleges, hospitals and other teaching institutions in conducting teacher training programs in other health-related fields.

In the early planning stages, each member of the National Advisory Committee and the Planning and Curriculum Committee tended to formulate objectives for the Institute in keeping with his own philosophy, interests and experience. Later these thoughts developed into a more definitive pattern as they were revised, evaluated and re-examined. All the while, an evaluation of each phase of the planning process was continuing. This give and take among the committee members provided an invaluable cohesiveness which strengthened the entire planning process.

The theory in establishing the two committees with some overlapping of membership was to maintain continuity throughout the planning, execution and evaluation processes. However, they actually merged in performing their work and later decided that one committee would be sufficient for future Institutes.

The committee members feel that they developed a common background of information and experience which has already proved valuable to them as individual members. Some have already successfully drawn upon this experience in establishing interdisciplinary groups for some of their own professional programs. They feel, too, that this mutual experience can be utlized in the future, with the structure possibly evolving into a format for similar interdisciplinary exchange and interaction. It is suggested that not only committees, but workshops, seminars, and other groups could be established with a heterogeneous group of educational and technical specialists, to devise other types of training programs for the entire range within the medical laboratory field as well as for other health-related technical specialties.

The degree of effectiveness of such a program depends largely upon the quality of communication that takes place, first between the planners of the program and the faculty, and then between the faculty and the participants. The committees were concerned that the curriculum content was not related more directly to the objectives which they developed for the Institute, and felt that the instructional program might have been geared more to the level of the backgrounds and abilities of participants.

It was felt that involving the faculty earlier in the total planning process (and providing them will full information about the profession, educational background, experience and specific needs of participants) would have helped to overcome this problem.

Despite limited involvement in initial planning, the teaching staff developed and conducted an effective program at the Institute. Analysis of participant's evaluations indicates that the set of objectives established by the committee did appear to meet the more general needs of the participants, with the principal criticism being one of degree. In other words, participants felt primarily that some learning aspects received more emphasis than others, and that the amount of time devoted to different subjects as well as the sequence of learning experiences should have been related more directly to their own technical specialty and background.

Since the emphasis is on the learner as the key focus in such a program, it is suggested that participants themselves should be involved directly in the planning process by obtaining their reactions prior to and during the Institute. Based on their comments and reactions, changes should be made during the actual conduct of the Institute, responsive to the needs of the participants.

Committee members gave unstinting time and attention to all phases of the evaluation and the final report. However, it was necessary to obtain an extension of two months to the original eight-month project for the final report because: (1) The writer was not involved in all committee meetings, (2) A new format for the report was received from the Office of Education after a draft had been prepared and, (3) The committees decided to devote more time to developing guidelines for conducting similar Teacher Education Institutes in the health field. These are included in the report as Appendix D.

Despite these findings, which are mentioned primarily as cautions for planning future Institutes, the overall plan and the pilot Institute were successful. Three independent evaluations -- from the Institute faculty, participants, and Educational Testing Service -- resulted in the same general conclusions. The committee members felt that this affirmed the validations of each separate evaluation.

V. CONCLUSIONS AND RECOMMENDATIONS

An analysis of all evaluations in the preceding section indicates that the pilot program was successful and that the initial intent carried over in the actual conduct of the Institute and its effects on the participants.

The committees recommend that other Institutes be conducted, taking into consideration the basic suggestions and proposals that evolved from this pilot program. It was felt that varying types of Institutes, with different settings and special content areas, would be valuable in developing new techniques, materials and ideas which could then be combined and adapted by other health related teacher training programs.

Some variations are suggested:

(1) To evaluate possible differential or additional gains, an Institute should be held in a simulated or actual laboratory assistant school.

(2) To facilitate next stages of development for those who attended the Memphis Institute or those who have comparable backgrounds, additional Institutes should be held which may be devoted to areas such as curriculum development for the laboratory assistant course, student selection and guidance, measurement and evaluation, instructional media, etc.

(3) To facilitate long term professional development and leadership to the field, there should be longer Institutes with or without credit. Informational material concerning additional educational opportunities should be developed and made available to those who recognize a need to upgrade their education but have few opportunities.

(4) To extend and promote communication and exchange on a national and inter-disciplinary basis, workshops or conferences should be established, involving persons from the medical health and educational fields, comparable to the membership of this pilot program's National Advisory and Planning Curriculum Committees.

Any of these varieties of Institutes might be followed by a series of state and regional Institutes to reach more participants.

It is recommended that when monies are not available for stipends for all participants who can be accomodated in a Teacher Education Institute, the sponsors should give serious consideration to inviting additional participants on a non-stipend basis since no problems were encountered with non-stipend participants in this Institute. Also, when money is in short supply, it should be used on program and facilities rather than for stipends.

The importance of focusing on the learner rather than the teacher should be the major emphasis for such programs. Emphasis would be on measuring the performance of learners (real or simulated) taught by Institute participants. Teachers in this case would not be practicing to become presenters of information, but rather as planners, organizers, coordinators, and managers of a learning environment. Instead of teaching students, they would guide them through a carefully sequenced series of realistic learning experiences.

For this purpose, a "microteaching" plan might be used, in which participants actually work with learners and with media, with the sessions videotaped for "instant critique" by the participating individual and by the group as a whole. Rather than "audiovisual aids" to illustrate or supplement a lecture/demonstration by the teacher, heavy emphasis should be placed on self-instructional media and programmed materials used as resources for independent learning by the student.

Favorable results were reported on the practice teaching assignments at the pilot Institute. However, there was some question whether such an activity can be conducted more successfully with the facilities and equipment used in the actual teaching situation. These possibilities are suggested for further exploration:

1. Inform participants in advance about the practice teaching assignments and advise them to bring relevant items with them.
2. Conduct practice teaching sessions in a clinical laboratory setting.
3. Supply more special equipment or a simulated setting.

Other specific recommendations for future Institutes are:

- Institute objectives should be stated more specifically and presented in detail to applicants so that they will know and understand the aims of the Institute.

- Instructors should have some familiarity with the field, although they need not necessarily be medical laboratory teachers. A combination of professional educators and medical technologists who teach might be ideal.

- Specific teaching techniques discussed, described, and demonstrated should have a direct relationship to the medical laboratory assistant curriculum. Perhaps health specialty terminology and methods could be blended into the instructional curriculum.

- The criteria for selecting stipend participants should also be applied to non-stipend applicants.

- The testing and evaluation unit in the Institute should be broadened, presented earlier in the program, and allotted more time.

- Material on working with the "disadvantaged" person could be more effective if woven into the general program rather than presented as a separate unit. For example, it could be very pertinent in discussing the selection and counseling of students.

- The Institute should provide more opportunities for exchange of ideas among participants.

- Emphasis should be placed on the use of instructional media as a resource for independent learning by the student rather than as "audiovisual aids" to illustrate or supplement a lecture/demonstration by the instructor.

- Certificates should be given to those who attend the Institute.

These specific recommendations relate to the total plan of the pilot program:

- One committee is adequate to plan an Institute.

- Involve the Institute teaching staff (and perhaps some potential participants) in the entire planning phase and coordinate their activities throughout.

- Reach an agreement with a host institution before the committee first meets so that lateral planning can be accomplished.

  or

  Arrange for members of the committee who plan the curriculum to teach the Institute.

- Arrange for the writer of the final report to attend all planning meetings or have one person responsible for the report and use a professional writer as editor.

- Select a few committee members as an editorial group responsible for the final report rather than having it reviewed by a large group.

APPENDIX 1

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AN OPPORTUNITY FOR MEDICAL LABORATORY ASSISTANT INSTRUCTORS

A TWO-WEEK INSTITUTE
on
TEACHER EDUCATION

The National Council on Medical Technology Education and the National Committee for Careers in Medical Technology have been chosen to offer a training institute under a grant from the U.S. Office of Education, Department of Health, Education and Welfare.

The grant makes it possible to offer a stipend of $75 per week plus transportation via air coach (round trip) for 16 participants. The host institution is the University of Tennessee at Memphis (Downtown). The institute dates are:

August 21 -- September 1, 1967

Arrangements are being made for housing, meals, and some pleasurable summer enjoyment -- Memphis style.

An Application is enclosed. Inquiries and completed applications should be addressed to:

N.C.M.T.E.
SUMMER INSTITUTE
1025 E.H. Crump Blvd.
Memphis, Tennessee 38104

(Applications must be in the N.C.M.T.E. office prior to June 26, 1967.)

THE INSTITUTE--------------
Will cover techniques and methods of teaching, learning principles, audiovisual usage, participant-centered curriculum development, and student evaluation.
This will be a non-degree connected program.

sponsored by: THE NATIONAL COMMITTEE FOR CAREERS IN MEDICAL TECHNOLOGY REPRESENTING THE AMERICAN SOCIETY OF MEDICAL TECHNOLOGISTS, THE AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, AND THE COLLEGE OF AMERICAN PATHOLOGISTS

APPENDIX 2

MEDICAL LABORATORY ASSISTANT TEACHER EDUCATION INSTITUTE

SELECTION APPLICATION

(It should be understood that the completion of this form is neither a commitment on the part of N.C.M.T.E. nor on behalf of the applicant as to acceptance into the institute program.)

Name ______________________________ Sex ______

Addresses: (Use Zip Codes and Area Codes, please)

Home ______________________________
(Street Address)

______________________________ Phone ______________
(City) (State)

Work ______________________________
(Street Address)

______________________________ Phone ______________
(City) (State)

Date of Birth ______________ Height ______ Weight ______

FAMILY STATUS (Circle or complete)

Single Married Widowed Divorced Separated

Dependents: Number ______________ Ages ______________

HEALTH STATUS (Circle or complete)

Any serious illnesses or injuries, last three years (List) ____

____

____

Any physical defects (List) ______________________________

____

____

APPENDIX 2

Date of last physical examination ______________________________

Is your health: good fair poor

EDUCATIONAL STATUS (Circle or complete)

Highest Grade Completed:	High School	9	10	11	12
	College	1	2	3	4
	Graduate	1	2	3	4

List Schools, Colleges, or Universities:

Name	City, State	Dates	Major	Degree

Type of Medical Technology School attended:

a) University Medical Center
b) Large hospital (over 400 beds)
c) Small hospital (under 400 beds)
d) Other (Please specify) ______________________________

____

Workshops or non-credit courses: (State types, dates, and places)

____

____

____

____

WORK EXPERIENCE (Circle or complete)

Years of Clinical lab experience prior to teaching______________

Years of Teaching experience: Laboratory Assistants Program______
Other (List type)

____

APPENDIX 2

Type of Medical Laboratory Assistant Program in which you teach:

Junior or Community College
Vocational or Technical Institute
Manpower Development Training Act
Hospital - Large (over 400 beds) Small (under 400 beds)
Armed Forces
Other (Specify) ____________________

____

____

If your program is other than Hospital operated, please specify type of clinical affiliation:

University hospital
Teaching hospital (affiliated with college or university)
Non-teaching hospital
Other (Please specify) ____________________

____

____

DO NOT MICROFILM

BACKGROUND INFORMATION (Complete)

What are your hobbies and interests?

What are the professional, fraternal, civic, or social organizations to which you belong? (State whether active or inactive status and offices held.)

APPENDIX 2

Why do you wish to participate in this institute?

What benefits do you hope to derive from participating in this institute?

Name and signature of physician and/or director under whom employed:

(signature)

(signature)

(Applicant)

(Date)

APPENDIX 3

SCHEDULE OF COMMITTEE MEETINGS

May 24, 25	National Advisory Committee, Washington, D.C.
May 26, 27	Planning and Curriculum Committee with representatives from Educational Testing Service, Washington, D.C.
June 16, 17	Planning and Curriculum Committee with Institute faculty, Memphis, Tennessee
July 13	National Advisory Committee with Educational Testing Service representative and Institute faculty, Memphis, Tennessee
July 14	Planning and Curriculum Committee, Institute faculty, and Educational Testing Service representatives, Memphis, Tennessee
AUGUST 21 - SEPTEMBER 1	TEACHER EDUCATION INSTITUTE UNIVERSITY OF TENNESSEE DOWNTOWN CENTER, MEMPHIS, TENNESSEE
October 6, 7	National Advisory Committee and Planning and Curriculum Committee, Washington, D.C.
October 27-29	National Advisory Committee, Planning and Curriculum Committee, Consultants, Educational Testing Service representatives and Institute faculty, Clearwater Beach, Florida
January 11, 12	National Advisory and Planning and Curriculum Committees, Washington, D.C.

APPENDIX 4

SELECTION CRITERIA REPORT
(Initial Participant Selection)

The Selection Committee -- Sarah Allene Wise, MT(ASCP), Katherine Weems, project staff assistant, and Arch Lugenbeel, project administrative assistant -- met June 12-13, 1967. Based upon the general suggestions of the National Advisory Committee and Planning and Curriculum Committee, the following primary selection criteria were established for the 16 stipend participants:

1. Number of years teaching in medical laboratory assistants program.
2. Exposure to education courses and/or workshops.
3. Number of years of clinical lab experience.

(All other information was used to obtain a composite picture of the group)

Background Information

Early in May selection applications and an announcement of the Institute were sent to approximately 175 potential participants. As completed applications were received, they were dated and given an identification number. During the first week in June, all pertinent information from the applications was transferred to Royal McBee Keysort Cards.

Keysort Cards and Selection

The McBee system aided the Selection Committee by making available:

. A simplified, inexpensive process for storing data.

. A readily accessible procedure for obtaining needed priority criteria.

. An extremely usable method to maintain anonymity.

The committee concensus on anonymity was unanimous. To obtain this, two sets of McBee Keysort cards were prepared, one for identification purposes (number, name, address, etc.) and the other utilizing the identification number only with notched position codes for pertinent and general information.

Selection Process -- Distribution and Priority Criteria

It was agreed by the committee that two categories of information lent themselves to equitable percentage distributions. These were:

1. Sex/Religious*
   Distribution - Male - 12.5% = numbers 2
   Female - 75.0% = numbers 12
   Religious - 12.5% = numbers 2
   (* No Male Religious)

2. Medical Laboratory Assistant Teaching Experience - one year, two years, and three years

Female (12)	Religious (2)	Male (2)
one year - 50% = number 6	Applicable in one case	Not applicable
two years - 33% = numbers 4		
three years - 17% = numbers 2		

Justification for number one above was that the male population and the religious should be represented since they are a distinct representation of the entire medical laboratory assistant instructor population. Category number two was justified on the basis that a composite of teacher experience related to the low-end experience is far better for exchange of information than limiting this main criterium to applicants with one year or less of experience. (The contract proposal emphasis, "present and potential instructors".)

Beyond these distribution aspects, the priorities for selection criteria most meaningful to the committee were, in descending order of importance:

1. Number of years teaching medical laboratory assistants program

   Preference: 1 year - 6 participants
   2 years - 4 participants
   3 years - 2 participants

   Justification: See distribution factor number 2

2. Educational Courses and/or Workshops Attended

   Preference: Non-attendance

   Justification: It was agreed that those who had educational exposure were possibly better as instructors than those who lacked it. This preference was selected in order to get greater benefit from the money expended and to give the Institute staff the opportunity to work with educationally non-exposed individuals.

3. Number of Years of Clinical Laboratory Experience

Preference: 4 to 7 years

Justification: The committee decided that one to three years' experience in the lab setting was either too short a time to get the feel of the laboratory or that these individuals were just developing. Seven years was selected as the top range since it would be a time when the individual might be at his peak both as a laboratory worker and an instructor. With this course and having little or no exposure to education, these individuals should be able to develop their potential into quality teaching personnel.

With this as the working base, the committee proceeded to sort, compile, and select 16 tentatively qualified applicants, using the McBee process. In addition to these 16 participants, the committee anticipated that it would be able to make available eight non-stipend positions in the Institute. These would be selected on the basis of being borderline and willing to come as non-stipend participants. Also, several applicants were asked to be alternates in case any participants selected dropped out.

APPENDIX 5

PARTICIPANTS

Mrs. Judy Adelman
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Little Rock, Arkansas

Mrs. Thelma K. Anderson
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Perth Amboy, New Jersey

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Mrs. Jeanne Bergmann
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Mrs. Norma J. Grooms
Charlotte Memorial Hospital
Charlotte, North Carolina

Capt. Frank Holub
Medical Service School
Sheppard Air Force Base
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Laredo, Texas

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Augusta, Maine

APPENDIX 6

STAFF - MEDICAL LABORATORY ASSISTANT
TEACHER EDUCATION INSTITUTE

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Educational Consultant

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Professor, George Washington University
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Resource Persons

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The University of Tennessee Medical Units
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Supervisor of Health Occupations
Memphis Board of Education
Memphis, Tennessee

Miss Patisue Jackson MT(ASCP)
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Memphis Board of Education
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Mrs. Lee H. Mayo MT(ASCP)
Assistant Director of Laboratories
Wake County Memorial Hospital
Raleigh, North Carolina

Dwayne Tucker
Supervisor of Distributive Education
Memphis Board of Education
Memphis, Tennessee

Lee Thompson
Assistant Superintendent for Instruction
Memphis Board of Education
Memphis, Tennessee

APPENDIX 7

BIBLIOGRAPHY OF INSTRUCTIONAL CURRICULUM

Books

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2. Fryklund, Verne C. Analysis Techniques for Instructors. Milwaukee: The Bruce Publishing Company.
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Articles

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2. PROGRAMMING IS A PROCESS: An Introduction to Instructional Technology. Susan Markle and Philip Tiemann. Tiemann Associates, Inc. 1967.

Films

1. "Computers in the Classroom - The Brentwood Experiment" BR-3 (IBM). ABC Documentary. New York.

2. "Programming is a Process." Print #245-17. University of Illinois at Chicago Circle, Office of Instructional Resources, Audio Visual Division, Box 4348. Chicago, Illinois 60680.

APPENDIX 8

TITLES OF MATERIALS HANDED OUT AT INSTITUTE

Instruction vs Production
An Individual
The Senses Through Which We Learn
Laws of Learning
Habit Formation
The Learning Process
The Lecture (Telling)
The Lecture
Demonstration
Illustration
Discussion
Oral Questions
Questions
Directed Activity
Choose the Best Method
Selection of Teaching Materials
Selecting Suitable Methods
How to Instruct
Review of Four-Step Plan
Six Ways to Speed Learning
Suggestions to the Teacher
Teaching Tools
Test - Relations of Methods to Four-Step Plan
The Training System
Customer
Basic Analysis
Human Instruction
Learning Psychology
Instructional Aids
Course Area
Cube Matrix
Chart

TITLES OF MATERIALS HANDED OUT AT INSTITUTE

How to Plan a Conference
Conducting a Conference
The Panel Method
Several Indirect Teaching Methods
Group Members
Discussion 66
Some Training Principles
The Illustration
How to Use the Blackboard
Characteristics of a Good Visual Aid
Detect the Most Effective Aid
Suggestions for Teaching with a Mock-up
Suggestions for Teaching with the Opaque Projector
Suggestions for Using Models, etc.
Wall Charts
Ten Commandments for Film Users
Nerves of the Head, Face and Neck
Veins of the Head, Face and Neck
Bones of the Head and Face
Muscles of the Head, Face and Neck
Progress Chart
Measurement and Evaluation

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APPENDIX 9

STUDENT EVALUATION OF THE TEACHER

Confidential-Do Not Sign

Please check appropriate column opposite each of the following:

	Poor	Fair	Good	Excellent
1. Degree of interest by instructor in the subject				
2. Ability of instructor to create student interest in the subject				
3. Ability to sustain group interest				
4. Evidence of mastery of subject				
5. Clarity of statement of course objectives				
6. Clarity of aim of lesson				
7. Promptness in starting and closing classes				
8. Evidence of lesson planning				
9. Necessary material and equipment on hand				
10. Use of variety of teaching method				
1. Use of proper method at proper time				
2. Ability to communicate				
3. Effective use of teaching aids				
4. Effective use of demonstrations				
5. Effective use of group discussions				
6. Ability to secure total class participation				
7. Degree of impartiality				
8. Provisions for testing and evaluation				
9. Objectivity of testing and evaluation				
10 Ability to get along with class members				
1. Appropriate dress for subject being taught				
2. Personal grooming				
3. Personality				

Comments, if any ____________________

____

APPENDIX 10

INSTITUTE EVALUATION

NO NAMES PLEASE

NCMTE SUMMER INSTITUTE
(Please return by Sept. 22, 1967)

Check the appropriate answer.

A. Do you believe the institute accomplished its purpose?

__________________yes ______________no ____________uncertain

If no or uncertain, please try to state why.

B. Will the institute assist you in your duties?

__________________yes ______________no ____________uncertain

If no or uncertain, please try to state why.

C. Do you think the institute would be of help to other CLA instructors.

__________________yes ______________no ____________uncertain

If no or uncertain, please try to state why.

D. Was the institute worth your time and effort?

__________________yes ______________no ____________uncertain

If no or uncertain, please try to state why.

APPENDIX 10

II Do us a favor and share your thoughts with us about the following:

A. Which part of the Institute was most helpful? Why?

B. Which part was least helpful? Why?

C. Were important subject(s) omitted from the Institute? If so, please list subject(s).

D. Would you eliminate any part of this Institute (if it were to be given again)? Which part? Why?

E. Was too much time devoted to some subject(s)? If so, please list subject(s).

F. Was too littletime devoted to some subject(s)? If so, please list subject(s).

APPENDIX 10

G. Do you have any other suggestions or comments?

Thank you for your assistance. September, 1967

(Use additional paper if needed)

APPENDIX 11

NO NAMES PLEASE

NCMTE SUMMER INSTITUTE
(Please return by Sept. 22, 1967)

LEARNING EXPERIENCES
(Analysis Form)

Please list below one to three learning experiences you had during the MLA Teacher Education Institute. (These learning experiences should have "taught you a lesson" or made a difference in your thinking or behavior.)

Note: Read carefully and fully before completing.

Write the response in as brief a form as possible, but make it understandable for analysis and tabulation.

Experience #1

A. What was the major learning you gleaned for yourself from this experience?

B. In what categories would you place this new learning? (Check one or more)

______________ New Knowledge (1) ______________ Changed Attitude (3)

______________ Improved Skills (2) ______________ Changed Behavior (4)

Experience # 2

A. What was the major learning you gleaned for yourself from this experience?

B. In what categories would you place this new learning ? (Check one or more)

_______________New Knowledge (1) _____________Changed Attitude(3)

_______________ Improved Skills (2) _____________Changed Behavior(4)

Experience # 3

A. What was the major learning you gleaned for yourself from this experience?

B. In what categories would you place this new learning ? (Check one or more)

______________ New Knowledge (1) ______________ Changed Attitude (3)

______________ Improved Skills (2) ______________ Changed Behavior (4)

APPENDIX 12

AN EVALUATION OF THE MEDICAL LABORATORY ASSISTANT TEACHER EDUCATION INSTITUTE

A Report by Educational Testing Service
Princeton, New Jersey

(This report on the following 33 pages is Appendix 12
of the Final Report)

AN EVALUATION
OF THE
MEDICAL LABORATORY ASSISTANT TEACHER EDUCATION INSTITUTE

A Report
to the

National Committee for Careers in Medical Technology

and the

National Council on Medical Technology Education

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Prepared by

Benjamin Shimberg and John V. Moe

October 1967

Educational Testing Service
Princeton, New Jersey

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ABSTRACT

Objectives

Educational Testing Service was asked to undertake the evaluation of a Medical Laboratory Assistant Teacher Education Institute to determine the extent to which the Institute met the needs of participants and to identify ways in which future institutes could be improved.

Procedures

Each of the 15 participants in the Institute was interviewed twice by telephone. In addition, one person who was to have participated, but was unable to do so because of ill health, was interviewed prior to the institute, but not afterward. The purposes of the first interviews were to ascertain: a) the nature of the participants' Medical Laboratory Assistant (MLA) programs, b) the participants' teaching procedures and problems related to their teaching, and c) their expectations regarding the Institute.

The second interviews were conducted about five weeks after the conclusion of the Institute. The major foci of the follow-up interviews were: a) an identification of the most helpful and least helpful experiences of the Institute, b) the extent to which participants' needs were met by the Institute, c) the utility of the material presented at the Institute, d) the participants' reactions to the organization and process of the Institute, and e) their suggestions for improving future institutes.

Conclusions

1. There was substantial congruence between the program devised to implement the goals set by the Planning and Curriculum Committee and the needs expressed by participants. The only significant discrepancy was the omission of any consideration of the CLA* course content--an area of participant need which was not covered by the objectives.

2. The strong points of the Institute were: formulation of behavioral objectives, lesson planning, and teaching strategies (including the use of visual aids). The most worth while experience, according to participants, was the teaching practicum. Areas requiring greater attention were: selection of students for CLA programs, evaluation of instructional outcomes, and counseling.

3. The needs expressed by participants appear to have been adequately met in the areas of organizing material, lesson planning and teaching aids. They do not appear to have been adequately met in the areas of evaluation, screening of students, or guidance.

---

*CLA - Certified Laboratory Assistant; a designation of the American Society of Clinical Pathologists, which approves specific course content and, upon completion of same, certifies the student through a national board examination.

4. The Institute, as conducted, met with the strong approval of most participants. Specific criticisms and suggestions for improvement are detailed in the report.

I OBJECTIVES AND METHODOLOGY

Objectives

The National Committee for Careers in Medical Technology (NCCMT), through the National Council on Medical Technology Education (NCMTE), invited the Educational Testing Service (ETS) to undertake a limited evaluation of the pilot Medical Laboratory Assistant Teacher Education (MLATE) Program, which was to be held in Memphis, Tennessee, on August 21 to September 1, 1967.

The contracting groups agreed that the evaluation would focus on two major objectives:

1. To determine to what extent the needs and expectations of participants had been satisfied by the Institute program.
2. To identify ways in which teacher education institutes of this type could be improved in the future.

Methodology

It was determined at the outset that the evaluation program would focus on the satisfaction of expressed needs of Institute participants rather than on the content of the instructional program. Face-to-face interviews prior to the Institute were ruled out as impractical because the enrollees were scattered from Maine to Texas and from Georgia to Wisconsin. Consideration was given to conducting the interviews on the day preceding the beginning of the Institute and on the day immediately following the Institute. This possibility was rejected, not only because of the time pressure involved and the likelihood of communication among participants, but also because the results would be less valid than results obtained several weeks before and several weeks after the Institute experience. It was felt that interviewing immediately after the Institute would not permit participants sufficient time to reflect on their experiences or to have implemented the ideas presented at the Institute. For these reasons, it was decided to conduct the interviews by long distance telephone, and to tape record each interview for detailed analysis.

A few days prior to the initial interview, all participants were alerted to expect a telephone call from an ETS representative. Calls were placed person-to-person. The purpose of the interview was explained and the approximate amount of time required was specified. Each participant was given the option of proceeding with the interview at that time or setting a time that would be more convenient for him.

The interviewer requested permission to tape record each conversation, with the assurance that nothing said by the participant would be attributed to him by name or in any other way that would reveal his identity. All readily agreed to these conditions. The frankness of their remarks indicated that they had confidence in the integrity of the interviewer.

The interview approach involved asking very general questions in order to encourage the participant to talk freely. If more information was required about a topic already introduced, a stimulus-linked question was asked. If a participant failed to introduce a topic about which the interviewer desired information, a more direct, probing question was asked. The interviews were conducted in an unstructured manner to secure maximum specificity and depth. When the interviewer felt that all areas on the summary sheet had been adequately covered, he terminated the interview. The interviews ranged from 20 to 50 minutes duration.

Cooperation was excellent. As might be expected, some participants were more verbal and better able to express themselves than others. In general those interviewed proved to be quite articulate and anxious to discuss the various topics that were brought up.

Immediately upon completion of each interview, the interviewer listened to the tape recording and noted any pertinent points not previously recorded on the summary sheet. This was done while the interview was still fresh in mind to insure completeness and accuracy of each report.

The Initial Interview

The initial interview was designed to elicit from each participant information bearing on the major objectives of the Institute program. The interview was conducted informally, as a conversation, with certain stimulus questions used to provide direction or to suggest areas about which the interviewer desired information. The following topics were covered:

1. The nature of the MLA program in which the participant was currently teaching.
2. The participant's teaching procedures, evaluation practices, and role perceptions.
3. The participant's awareness of problems related to the selection of the students for his program--screening procedures and qualifications sought.
4. The participant's role as a counselor and his feeling about appropriate teacher-pupil relationships.

An effort was also made to ascertain his expectations with respect to the forthcoming institute and the specific areas in which he wanted help.

The Follow-up Interview

The follow-up interview focussed on the Institute program and the individual's reactions to that program. It was patterned in such a way that the individual had to draw on his own experiences for his answers. For example, he was first asked to make a global evaluation of the Institute. Whatever his reply, he was then asked to indicate which experiences he had found most (or least) worthwhile. The interviewer maintained a flexible approach, permitting the interviewee to structure the interview according to his own concept of what was important. Probe questions were used, as necessary, to elicit comments about specific aspects of the program that were not brought up spontaneously. Thus, in the course of the interview, each participant made comments about the structure of the Institute, facilities, instructional staff, etc. as well as about the specific topics.

A special effort was made to ascertain whether the Institute had influenced the individual's teaching behavior. For example, when a topic was mentioned as having been especially helpful, the individual was asked to be specific and to tell how it had been helpful. When discussing teaching procedures, the participant was asked to think about the procedures he had been using prior to the Institute and to describe anything that he might now be doing differently.

Participants were encouraged to express their feelings and to make evaluative statements. While some appeared reluctant to say anything negative, most seemed to have a balanced viewpoint. They could see the good features of the Institute, yet were able to recognize weaknesses or suggest how something might have been handled differently. For example, most participants were ready to express disappointment at the absence of medical technology content. They were also quite specific about topics on which they would have liked to have had more time.

The interview and recording procedure followed was essentially the same as that followed in the initial interviews. Rapport with participants seemed to be excellent. Although they knew they were talking long distance, they took time to recount anecdotes and to relate specific experiences. Significantly, several interviewees remarked "Oh well, as long as this is off the record, I'll tell you what I really think." The distinct difference in the tone of the interview following such statements suggests that some of the participants may have held back critical comments, if they had any, to spare the feelings of those involved.

DO NOT LITHOGRAPH

II HOW WELL DID THE INSTITUTE PROGRAM ANTICIPATE PARTICIPANT NEEDS?

This section of the report will examine the extent to which topics included in the Institute program coincided with the needs and expectations of participants. We shall summarize what participants said they hoped to get from the Institute and then review the Program Plans that were developed by the Institute faculty to implement the objectives of the Institute.

It seems reasonable to assume that the greater the similarity between Program Plans and participant needs, the greater the likelihood that the Institute will be judged a success by participants. To the extent that the program fails to deal with significant needs, we may expect participants to voice dissatisfaction with the Institute.

Expressed Needs of Participants

During the initial interviews, participants were asked to describe problems they had encountered in fulfilling their instructional roles and topics on which they hoped to get help at the Institute. An analysis of responses revealed 40 specific needs related to the educational process and 15 related to the content of the CLA course.

The needs relating to the educational process are summarized below:

1. How does one effectively organize instructional material?
2. How does one present material effectively? (What are some "learning principles we can use?" "What tricks do others use to put over difficult points?")
3. How does one hold student interest and get them involved in discussions?
4. How does one discover what teaching aids are available and where to obtain them?
5. How does one size up the capabilities of students in order to know what to expect of them and to plan instruction at the appropriate level?
6. How does one evaluate outcomes of instruction in both the classroom and the laboratory? Which testing methods are best?
7. How does one effectively screen students for the MLA program?
8. How does one provide guidance to students on personal matters?

9. How does one work effectively with other instructors in a "team teaching" situation?

In addition to these needs related to the educational process, nearly all those interviewed expressed needs related to the objectives and content of the CLA course itself.

These needs are summarized below:

1. They wanted clarification of the goals of the CLA program. ("How far should we go?")
2. They wanted clarification about proper balance between theory and practice.
3. They wanted to know how to reconcile seeming inconsistencies between the CLA Board examination and the CLA curriculum content.
4. They wanted information about available textbooks and other types of teaching aids to improve instruction.
5. They wanted to exchange information with others who are teaching CLA courses, in order to find out what they cover, how they handle various topics, how deep they go, and what they expect from students in the way of knowledge and performance.
6. They wanted to keep up with changes in laboratory procedures and equipment. (This was a special concern of those who are not teaching in a hospital setting.)

Objectives Formulated for the Institute

The Planning and Curriculum Committee formulated the objectives for the Institute in terms of the behavioral outcomes desired.

These outcomes were stated as follows:

1. The participants will see themselves as being adequate in their various roles as a teacher. More specifically, they will feel adequate as professionals, managers, counselors, and as members of an educational staff.
2. The participants will be able to state educational objectives in behavioral terms. In order to do this, they will be able to analyze tasks that need to be learned, establish performance standards, actually formulate the objectives, and then establish selection criteria for the objectives stated.
3. The participants will be able to devise means of measuring student progress. Included in this objective is the application of performance tests and observational techniques.
4. The participants will be able to plan learning experiences. By this is meant that they will be able to organize subject matter, to distinguish between

teaching process and content, and to determine the sequence and schedule of the curriculum.

5. The participants will be able to select and implement the most effective teaching strategy.

The Institute Program designed to implement these objectives included units on:

1. The formulation of learning objectives.
2. The medical technologist as a teacher.
3. The instructor as: planner, motivator, master teacher, laboratory manager, student counselor, and student tester and evaluator.
4. The psychological factors of teaching and learning.
5. Teaching methods and techniques.
6. Communication.
7. Group Dynamics.
8. Planning Instruction.
9. Audio Visual teaching media: selection, development and use.
10. Special needs of the disadvantaged.
11. A practicum in teaching and constructive critique.
12. The measurement of educational outcomes and interpretation of test results.

Comparison of Needs and Program Plans

While it is not possible to make a direct comparison of the needs expressed by participants and the behavioral objectives outlined by the Planning and Curriculum Committee, it is evident that the Program which was developed to fulfil the objectives of the Institute included material related to virtually all of the expressed needs--and many more. The only educational topic mentioned by a participant that is not reflected in the curriculum outline deals with "team teaching." Since this appears to have been a special concern of a single individual it may not have merited inclusion.

The high degree of congruence between expressed needs and the Institute program indicates that the Planning and Curriculum Committee was well aware of the major problems facing MLA instructors. In formulating behavioral objectives and designing the Institute program, they have "touched all the bases." Yet, we should realize that because the behavioral objectives were so broadly conceived, it was necessary to develop a very comprehensive curriculum outline--one which compressed a great deal of complex material into a very short time period. We should be cautious about concluding that because a topic appears in the curriculum outline, it was dealt with adequately at the Institute. In the next section of the report we shall examine the extent to which various expressed needs were actually dealt with by the instructional staff.

Before leaving the topic of expressed needs and stated objectives, it may be worth noting that during the initial interviews participants indicated that they were far more concerned about the objectives of the CLA curriculum than they were about their own teaching. Implicit in many of the comments was the thought that, "We need to have a clearer idea of what we are trying to accomplish. We know that we are supposed to be teachers (and we need to improve), but what are we supposed to be teaching? What are the behavioral outcomes we are striving to achieve?"

Most participants expressed disappointment during the initial interviews when they learned that the Institute would not deal explicitly with the CLA program. In fact, several individuals asked the interviewer to communicate their concerns about content to the Institute Coordinator (which he did). In the follow-up interviews, many of the participants expressed disappointment that more attention had not been devoted to the CLA program. One participant indicated that she would not have attended had she realized that the Institute would deal exclusively with instructional methods and not at all with course content. However, this view was not typical. Although many continued to express a desire for help with respect to the CLA curriculum, they said that they were glad to have had the opportunity to attend the Institute and felt confident that the experience would help them to become better teachers.

III HOW WELL DID THE INSTITUTE PROGRAM ACTUALLY MEET PARTICIPANT NEEDS?

In developing plans for evaluating the Institute program, ETS representatives and members of the Planning and Curriculum Committee agreed that, while it would have been desirable to investigate the degree to which the Institute had modified the attitudes, self concept, and teaching behavior of participants, it was impractical to do so with the limited funds available. As an alternative, it was decided that the evaluation effort would focus on the degree to which the expressed needs of participants had been satisfied by the Institute program. While the satisfaction of expressed needs does not necessarily insure that the broad behavioral outcomes of the Institute were achieved, we may feel reasonably sure that failure to meet these needs would decrease the likelihood of attaining the broader objectives. Thus, we may view our present inquiry as an exploration of a "necessary, but not sufficient" condition of program effectiveness.

Since no representative for ETS was present at the Institute, we have no way of knowing what actually took place. All that we know about what transpired has been communicated to us by participants. We recognize that our picture probably contains inaccuracies--even distortions--because of the indirect method used to gather data. Yet, we believe that for our purposes, these reports have validity. The overall picture that emerges represents a consensus of what participants say happened. If their reports about what took place at the Institute do not agree with objective fact, we must nevertheless recognize the psychological significance of their perceptions. In short, the reports of participants became "facts" (or at least "data") in their own right.

We have sought to ascertain how well the Institute program met participant needs by asking about "most" and "least" worthwhile experiences, as well as a number of questions about specific aspects of the program. While we shall allude to the fact that certain topics were more frequently cited as "worthwhile" than others, we shall not attempt to rank order them. One limitation of this approach (as far as any ranking is concerned) is that it deals only with the extremes and does not elicit comments about topics which fall in between.

Recognizing this limitation, we nevertheless feel that the approach has provided meaningful insights regarding how well various aspects of the Institute program were implemented. We feel confident that those topics which were cited as most useful were probably covered adequately, while those cited as least useful were either covered inadequately or lacked relevance for the participant.

During the course of the interview, specific probes were used to elicit comments about topics that were not mentioned spontaneously. The information obtained in this way served to fill in the gaps and to provide some feedback on virtually all major aspects of the Institute program.

One additional procedural point deserves mention. During the initial interview, each participant was asked to list the educational concerns on which he hoped to get help at the Institute. During the follow-up interview, this list was read back to the participant and he was asked whether he had received the help he had needed. Except for topics which were covered inadequately because of lack of time, the great majority of participants indicated that most of their educational needs had been met. In general, a high degree of satisfaction with the Institute was expressed by participants.

Following are summaries of both favorable and unfavorable comments made by participants about various Institute "experiences."

Evaluation of Institute Experiences

The Teaching Practicum

An overwhelming majority of participants listed the teaching practicum as their most worthwhile experience. They indicated that the practicum gave them an opportunity to consolidate all that they had learned at the Institute, e.g., formulation of objectives, lesson planning, and techniques of presentation.

Those who had the opportunity to see themselves on video tape said that they had become aware of mannerisms that they had not suspected and which they now realized might interfere with their teaching effectiveness. One participant observed that she hadn't realized that she talked into the blackboard and that students would have great difficulty understanding her. Those whose teaching had not been recorded on video tape expressed great disappointment at not being able to see themselves.

While several participants mentioned that they had found the critiques of their teaching helpful, there were others who thought that the criticism had been too "uncritical." These participants felt that the instructors had leaned over backward to say complimentary things and had discouraged anyone in the class from making critical comments.

> -We had teaching demonstrations...I think that when you do this you are to get up there to teach and to receive advice, criticism, and whatever, to help you. That's the purpose of these things...Regardless of who got up there it was 'marvelous,' 'splendid,' 'fine.' If anybody offered any type of criticism we were wrong...
>
> -The teaching practicum could have been one of the most worthwhile experiences of the Institute if it had been conducted with proper criticism, followed by re-teaching. (Paraphrased)

Formulation of Behavioral Objectives

Most participants expressed enthusiasm for the presentation on the formulation of behavioral objectives. For many it was the high point of the Institute. Indeed, several remarked that what came after the second day was "anti-climactic." There seems little doubt that the instructor managed to communicate to the group the significance of formulating behavioral objectives preparatory to developing lesson plans, selecting materials, etc. At many points during the interviews, participants gave indications that they were relating his ideas to their own programs. Several commented that as a result of the insights gained they were "completely reworking their own objectives."

> -When we first went there we thought that an objective was to teach hematology or to teach how to do blood counts; but then when we came out we realized it's not just to teach, but that the individual is able to perform accurately these procedures...Objectives really are what the student does rather than what we aim to do.
>
> -Too often we want to write objectives for our own use as an instructor or teacher and not in terms of what the student will do or know when he has completed our course.
>
> -I realized that it's most important that the student know what is expected of him because if he does not know what is expected of him how does he know what he is supposed to do?

> -...Objectives have been just highly glorified aims. Here they made us realize that an objective was something that was actual change in behavior in somebody, the student...By stating your objectives for your students they should be able to realize how they're going to be tested.

Despite the high degree of enthusiasm shown for the personality and "message" of the instructor who presented the subject of behavioral objectives, there were nevertheless a number of critical comments. A number of participants reported that they found his presentation confusing, primarily because he was using illustrations from another field. Two students cited their frustration over a homework assignment for which directions were not clear. Moreover, they could not see the relevance of the assignment to their own field. Even some of those who had found his presentation clear and his illustrations appropriate, expressed the view that he had used up a disproportionate amount of time that could have been spent on other topics.

> -The part about objectives was too long.... I don't recall if it was one and a half or almost two days just on that.... It could have been made shorter and still made very useful.
>
> -He took too long, though he was good. (Paraphrased)
>
> -Writing objectives would have been a good experience had it been more clear. (Paraphrased)
>
> -We spent the greater part of two days with writing learning objectives. I think that is necessary, but I think it could have been shortened...

Use of Audio Visual Aids

Although most participants had reported that they were making use of audio visual aids prior to the Institute, they now felt that their perception of the role these materials could play in their own programs had been greatly changed by the Institute. Several referred to the fact that they had not previously appreciated the importance of previewing films and filmstrips. There was general agreement among participants that they were better informed about new equipment, such as the overhead projector. A number referred to the fact that they had learned to make their own transparencies.

From the enthusiasm with which the topic of audio visual aids was discussed, it seems highly probable that this will be one of the first areas in which the impact of the Institute will be felt back on the job. However, some participants tempered their enthusiasm with the observation that the equipment was too expensive for their limited budgets, and that the net effect might be to make them "frustrated."

Participants differed sharply on the value of learning how to operate the audio visual equipment. One said that too much time had been spent on specialized equipment that was different from that which he had available. Another said that not enough time had been allowed for this purpose. There were also complaints about the lack of enough supplies and equipment to go around. It is obvious that reactions to this aspect of the program vary with each participant's needs and past experiences.

Lesson Planning

While "assistance with lesson planning" was seldom mentioned as the most worthwhile experience, it was frequently mentioned as a worthwhile experience in conjunction with the formulation of objectives. There were indications that many of the participants had sensed the need for day-to-day and week-to-week planning within the framework of the course objectives. Many reported that they were already using lesson plans and finding them helpful to insure that all intended topics were covered in a day's teaching.

> -...Before I would just go through the procedure slowly and try to explain each step as I went along and leave it at that; but now I realize that it's necessary to give a brief explanation and go through the procedure as you would normally do it...then go back and do it slowly and explain each step over again...then have them do it and watch them as they do it and help them as they do it...then have them do it on their own. I think that this was definitely a help to me.
>
> -Before it was kind of haphazard lesson planning and this time I see that it definitely has to be everything written out, which I'm trying to do.
>
> -When somebody demonstrates something he knows very well, you have a tendency to leave out little points that may be key points to those who do not know how to do this particular thing. I think that's one thing that was pointed up to me there - that it is

> necessary to point out all of these things - little things - that are so almost mechanical with one who does this thing routinely, but can be a real stumbling block for someone who is just learning to do it.

Tests and Measurements

There was general agreement that this topic was important, that insufficient time had been allowed for it, and that it came too late in the program.

During the initial interviews many participants had indicated a desire to receive assistance with two aspects of measurement: 1) tests to help in screening prospective MLA applicants, 2) techniques for evaluating the outcomes of instruction. Neither topic seems to have been dealt with adequately.

> -There was not a lot of emphasis on that...(Tests and Measurements) - We took that up on the last day or so of the Institute and it was really anti-climactic, I suppose, because we had all given our demonstration lectures; it was sort of a let-down period. We did have some discussion of tests and measurements and about the best tests to use - objective as opposed to the essay and so forth, but I felt like more time perhaps could have been spent on this phase of it.
>
> -I think that more time should have been spent on tests and measurements and testing. The thing is... they were not talking to us about our program. They were just talking to us about teaching. Period. They didn't tell us anything about entrance requirements or our students.
>
> -Testing was lacking. We spent only two hours on it.
>
> -We were given no useful data about evaluating and selecting standardized tests. (Paraphrased)
>
> -Tests and measurements would have been more meaningful with practice exercises.
>
> -Could have spent more time on testing and test evaluation. (Paraphrased)

Counseling

A number of participants mentioned that counseling students was one area in which they felt especially insecure:

> -I didn't realize that when I started teaching the course that I would be a father confessor and everything else. We do a good bit of counseling. It's unavoidable.

It is not surprising, therefore, to find some participants expressing disappointment that this topic had not received more attention.

> -I think we had one lecture...on counseling... nothing outstanding...We do a lot of that you know. We do a lot of counseling because a lot of these kids really need it.
>
> -That was something I felt could have been covered more - the counseling of students with personal problems, problems related to their work, or whatever. I felt like that was one thing that could have been covered in more detail.

Interpersonal Relations

Very few participants mentioned this topic spontaneously, possibly because very little time appears to have been allocated to it in the program. About half who expressed opinions thought that the psychologist had something worthwhile to say and felt that they could relate it to their programs. Others found him "too esoteric." Evidentally he talked over the heads of some of the participants.

> -I particularly enjoyed the lecture by the psychologist.
>
> -The psychologist was too "far out." Away from us.
>
> -The psychologist was too esoteric...
>
> -The psychologist stimulated her to further reading. He spoke at a higher level. (Paraphrased)

Special Problems of the Disadvantaged

Of the five participants who referred to this presentation, three indicated that they did not understand why it had been included in the program and two considered it their least worthwhile experience.

Group Dynamics

This topic was mentioned by only one participant, who volunteered the following comment:

> ...the session on group dynamics. Really, we didn't go into those as much as we might have in order to make them meaningful for us to use when we got back to our own situation. The only thing we really discussed in depth was the conference and we didn't get into the other group dynamics.

Exchange of Viewpoints With Other Participants

One experience that was truly outstanding for most of the participants (although not officially part of the program) was the opportunity to get together with others teaching the same subject and to exchange views about common problems. As noted earlier, many participants had indicated during the initial interviews that they had hoped to get clarification of the CLA curriculum. Most expressed disappointment when they realized that the Institute would not be concerned with this topic. Nevertheless, they did manage to "talk shop" during their free time and learn a great deal about one another's programs.

> -The most helpful information I got was out of the classroom....Just talking with them (the other participants) and sharing ideas and opinions and so forth.
>
> -Should have allotted more time to get together with each other.
>
> -...I feel like if we could have had some planned sessions of just being able to share our thoughts, this might have helped a lot.

Several members expressed appreciation for the coordinator's willingness to make room for a discussion of the CLA curriculum at a dinner meeting and for his obtaining resource people to participate in the discussion. As a result, the group drafted a letter to the Board of Certified Laboratory Assistants of the American Society of Clinical Pathologists requesting clarification of CLA objectives and giving their suggestions for improving the program. A number of participants made reference to the letter and wondered if it would ever be acknowledged. They expressed the hope, if a reply was received, that copies would be circulated among all who had been signatories of the original letter.

Evaluation of Need Satisfaction

In the light of the foregoing discussion, we may now examine the extent to which each of the expressed needs of participants was met during the Institute.

1. How does one effectively organize instructional material?
   This need seems to have been met very well.
2. How does one present material effectively?
   This need seems to have been met very well.

3. How does one hold student interest and get them involved in discussions?

   We have no evidence that this need was dealt with directly, but comments from participants suggest that many facets of the Institute made them feel more competent as teachers and better able to arouse and hold the interests of students.

4. How does one discover what teaching aids are available and where to obtain them?

   Participants indicated that they had received some help in this area during the audio visual presentations. However, several indicated that the best information they got came from other participants.

5. How does one size up the capabilities of students in order to know what to expect of them and to plan instruction at the appropriate level?

   This area does not seem to have been dealt with explicitly, probably because there was insufficient time for a discussion of initial screening and testing in general.

6. How does one evaluate outcomes of instruction in both the classroom and laboratory? What testing methods are best?

   The Institute seems to have imbued participants with an awareness of the importance of evaluation, but it failed to provide much assistance with respect to the actual development of tests and/or the use of other evaluation techniques.

7. How does one effectively screen students for the CLA program?

   Selection testing was dealt with only briefly and many participants said that they wished there had been more time for this important topic.

8. How does one provide guidance to students on personal matters?

   The counseling role of the CLA instructor seems to have been recognized in the curriculum outline, but participants said that they did not get as much help as they would have liked.

9. How does one work effectively with other instructors in a "team teaching" situation?

   This topic was mentioned by only one participant. It was not included in the curriculum outline, perhaps because it represented a highly specialized interest.

During the initial interviews participants also mentioned a number of needs related to the CLA program. Although these needs were not dealt with formally during the Institute, participants report that some of them were met through informal discussions with fellow-students at the Institute. Most of those interviewed rated the opportunity to discuss the CLA course content with others as one of the greatest values of the Institute.

Evaluation of Behavioral Objectives

Although it was not our intent to attempt a formal or systematic assessment of the degree to which the behavioral objectives were attained, our analysis of interview responses has yielded sufficient data to permit a number of limited generalizations to be drawn. We would not wish such generalizations to be regarded as a substitute for a more rigorous evaluation; however we feel our preliminary observations do suggest that some changes--particularly in attitudes and perceptions--have resulted from the Institute experience.

Following each of the behavioral objectives (below) we have added subjective comments to indicate the degree to which it appears, from our interview data, that each may have been satisfied.

1. *The participants will see themselves as being adequate in their various roles as a teacher. More specifically, they will feel adequate as professionals, managers, counselors, and as members of an educational staff.*

   During the initial interviews participants frequently expressed anxiety about their teaching role and some said they had taken it reluctantly. They said the transition from working in a laboratory to being a teacher had been difficult.

   Following the Institute they expressed a definitely more positive attitude toward their teaching role. They now felt that teaching had prestige, that it called for considerable competence, and that doing a good teaching job was a real challenge.

2. *The participants will be able to state educational objectives in behavioral terms. In order to do this, they will be able to analyze tasks that need to be learned, establish performance standards, actually formulate the objectives, and then establish selection criteria for the objectives stated.*

   The best indication that the participants had gained an understanding of what was meant by "behavioral objectives" came in the form of statements that they now felt that it was important for the student to know what was expected of him. Previously, they had formulated objectives in terms of what *they* wanted to put across.

   While a number indicated that they planned to reformulate their course objectives, we have no evidence that any have actually done so, or that they can do so.

3. *The participants will be able to devise means of measuring student progress. Included in this objective is the application of performance tests and observational techniques.*

Participants report that this topic was slighted during the Institute and that there was no opportunity to develop knowledge or skill that could lead to a change in behavior. Thus, it is unlikely that this objective will be fulfilled.

4. The participants will be able to plan learning experiences. By this is meant that they will be able to organize subject matter, to distinguish between teaching process and content and to determine the sequence and schedule of the curriculum.

   From the many comments relating to lesson planning and the organization of material, we would expect some changes in behavior. Such changes may not occur immediately, but if the Institute program has had any lasting impact, such changes may show up when lesson plans are reviewed next year.

5. The participants will be able to select and implement the most effective teaching strategy.

   The Institute provided a wealth of ideas regarding teaching strategies and participants said they were eager to try them out (though few claimed to have actually done so). The enthusiasm expressed for the teaching practicum and the request for constructive criticism also suggests that at least some of the participants are willing to try new approaches in order to increase their teaching effectiveness.

It is clear that the full impact of the Institute on participant behavior will not be manifest for some time. Several participants said, for example, that they would not be able to purchase audio visual equipment or teaching aids because of budget restrictions in their present institution. However, they indicated that their enthusiasm for such aids had been kindled and that they would seek to gain access to them whenever the opportunity presented itself.

There is, of course, no way of knowing at this time whether or not they would follow through if given the opportunity. Yet it seems reasonable to assume that, if the Institute created in these students an awareness of the possibility of change and a readiness to try new approaches, and if conditions are favorable, they will be more likely to undertake the desired behavior than if no such readiness had been created.

IV PROCESS OBSERVATIONS BY PARTICIPANTS

As one would expect, many of the comments made by participants related to the instructional staff, to the organization of the Institute, and to "process" observations. While the vast majority of the comments about the Institute were favorable, these tended to be very general, non-specific, and not particularly quotable. Participants who had critical things to say tended to be more specific and their comments do lend themselves to quotation.

There is a degree of danger in quoting criticism which in all likelihood reflects a minority viewpoint. However, we have decided that the possible benefits from using such critical quotations outweigh the possible hazards. We would caution our readers to keep this caveat in mind as they read those sections of this report which include such material.

The Institute Staff

In general, participants felt that the instructors were well qualified to teach the educational aspects of the program, but nearly all expressed regret that they lacked an understanding of the field of medical technology that would have enabled them to provide the necessary bridge between "teaching technique" and the "content of the MLA course."

> -At first we were a little bit disappointed that they were not in our field, but after we realized the objectives were teacher training, these men were well qualified as teacher trainers...They were not there to train us as teachers of medical technology. They were there just to give us the principles of good teaching and...that's what they got over to us.

> -After I found out what it was about, I think it went off very well. I think I had gone over there with the wrong idea and didn't expect it to be geared so much to the education angle, but after I got over there and realized that it was teacher training more or less, I think that it was handled very well and they accomplished their objective or whatever they set out to do in the teacher education line....

> -They were well prepared for demonstrating to us how to teach, however, I would have liked to have one or two on the staff who would have known more about our field because I don't think any of them knew very much about our medical technology field.

> -You hate to be critical. I mean they did a splendid job and I don't want to be critical of them... (but)...they had two instructors there that had absolutely no concept of medical technology. They were teacher trainers and they presented this teacher trainers course to bricklayers, nurses aides, beauticians, so forth and so on, and I feel like they should have geared it just a bit higher for us. I'm not trying to say we're any better than anybody else, but what they spent two weeks teaching us could have been accomplished in two days.

> -Instructional staff was very good.

There were a number of references to the instructors as "too low level" and "too folksy" for a group of this type. The instructors had apparently established a teaching pattern which was directed at workers who were less educated than the technologists who attended the Institute. Hence, much of the content of the Institute was presented slower and in less depth than could have been assimilated by those attending. Some were quite critical of this repetition and lack of depth.

> -...I can break it up into four words - the four steps of teaching. We got that again and again. Now don't get me wrong. This was all important and I feel like it was worthwhile, but we didn't have to be told again and again and again and again, because we're fairly intelligent people.

> -Communication - they hammered it into our heads until I lost my ability to communicate with those people.

> -They took turns teaching and it was the same thing over and over.

Those participants who were openly critical of the instructors were also quick to point out that the instructors didn't always follow their own precepts. Several mentioned that they made extensive use of handouts and then proceeded to read them to the class, although they had said earlier that this should not be done. Several remarked that they had been told not to play favorites, yet the instructors showed definite favoritism toward one of the participants. This was resented by some although others indicated that they had benefited from this individual's presence.

> -At least one (instructor) had a tendency to...act as if one of the participants was actually another instructor and kind of asked his opinion on things rather than treating him as a participant, which he was supposed to be. I think this is a little bit of favoritism which they tell us we should not use....After a while this became a little annoying.

> -...and another thing, we had one man in that class that ran the show. I don't know why he received special treatment but he did all the taping, all the camera work, and all that stuff and I don't think that's right. We were all participants. He was not superior to any of us. It was not his privilege to teach the class. If that were the case, why didn't they put him on the payroll?

> -They ask you a question...If you give them an answer that's not the one they want, that's not what they want. They want the one that they want...They were so rigid.

> -...it seems as if they broke every rule they taught us.

Several participants gave the instructors high marks for trying to relate teaching principles to course content. These efforts do not appear to have been very successful, but they do reflect concern on the part of the teachers for the needs of the group.

> -...The people who were instructing us were not so informed on the lines of medical laboratory technology, so anytime we did begin to get into anything about course content we got into a problem, because all of us disagreed as to what should be included and, of course, the instructor was not familiar with it so he could not help out there.

> -It was hard for him...(He) often tried to get us to give examples of our stuff then we'd really get bogged down for about 30 minutes trying to relate it to what he was talking about.

> -They were so unfamiliar with our work....What would constitute a lesson for him was not a lesson for us because he didn't understand how far our work could be broken down...It was up to us to relate it. He was not able to.

Organization of the Institute

Most of the participants expressed high praise for the careful planning that went into the Institute and expressed appreciation to the staff for the many thoughtful services that were provided.

There were several complaints about the length of the working day. One participant said, "...You don't just sit for 12 hours. You can absorb just so much and that's it." Others felt that some of the evening sessions had not been worthwhile. This, too, may have reflected fatigue or merely a distaste for meetings after dinner.

The sequence of topics also came in for some criticism. It was felt by some that tests and measurements should have come before the teaching practicum.

One or two participants remarked that there had been a definite letdown after the presentation on behavioral objectives and again after the teaching practicum. They suggested that some way be found to build up to a climax, rather than having high points followed by an anti-climax. Ideally, someone with a dynamic personality would have been desirable as a summarizer for the Institute.

V SUGGESTIONS FOR FUTURE INSTITUTES

When participants were asked to suggest changes that might help to improve future institutes, most replied with comments related to the instructional staff. As the quotations cited below indicate, most participants said that they would prefer instructors who were familiar with medical laboratory technology. Some would have wanted only this type of instructor; others would have been satisfied with a staff that included both teacher trainers and medical technology educators.

> -The Institute...wasn't geared to the MLA program. Should have had a teaching technologist to coordinate the teaching with the program.
>
> -One major thing would be to have someone...an educator ...from medical technology to help relate all of this to the subject matter. What we learned was good, but it could have been better if we'd had someone to help us apply it to our particular field.
>
> -My suggestion would be to have someone who is thoroughly acquainted with medical technology present a complete... curriculum for teaching MLAs.
>
> -Instructors should spend some time in the laboratory situation so their examples would be more closely related to medical laboratory assistant training programs. (Paraphrased)
>
> -...When I came back I realized that if we looked at it from the way they presented it to us we wouldn't accomplish a thing....You don't follow those rules of teach, present, discuss, show audio-visual...You can't do all of that when you're teaching complicated chemistry procedures....You can't look at it strictly from an educational standpoint. That's why they let medical technologists teach instead of teachers.
>
> -This is one thing that I think would be a help in the future...to have someone who is in medical technology and who is familiar with proper teaching methods...to come and supplement what has been learned by applying it to the content that we will be teaching.
>
> -...Get people to teach who are more used to talking to college-level professional people and who are familiar with the medical field.

> -Change the teaching staff...Screen applicants better (some had had teacher training)...Involve more technologists. (Paraphrased)

In addition to selecting instructors with greater familiarity with medical technology, there were also requests that the training deal more specifically with teaching techniques used in this field. There were many comments (as already noted) regarding the difficulty of transferring the training presented in general terms to the specific situation (which they didn't feel really fits the general case very well anyway).

Several participants suggested that the ideal instructor would be a technologist who was also a master teacher.

The suggestion was also made that when future institutes are publicized, a more detailed description of the objectives be included. Most participants felt that the objectives for the Institute were too vague and that this led to unwarranted expectations that the program would include material relating to the content of the CLA programs. When participants realized that this was not a purpose of the Institute they were understandably disappointed.

It was also suggested that participants be screened more carefully. There was a considerable range in background and ability, so that it became difficult to satisfy everyone. For example, when the psychologist gave what appears to have been a high level presentation, including some theory, it was criticized as being over the heads of some participants. Others were critical of instructors who talked down to the group. It might be worth considering the exclusion of individuals who have already had one or more courses in education, since they are likely to find the content of such a course repetitious and boring.

A number of people suggested that participants be encouraged to bring to future institutes samples of their own lesson plans, instructional aids, tests, and rating forms. These would be useful during the teaching practicums, and for an exchange of ideas among participants.

The whole area of communication among participants received considerable emphasis. Many people mentioned that the opportunity to find out what others were doing was one of the greatest benefits they derived from the Institute. Some mentioned that they had obtained information about good teaching materials from other participants. It would seem that planned sessions to facilitate such interchanges of experiences and ideas should be built into the program of future institutes.

In previous sections of this report we have alluded to the long days and to the desire of participants for more free time. The planners for future institutes should consider either shortening the days or arranging the program so that the participants do not need to remain seated in one place for long periods of time.

Several thought that the total time spent could have been used to better advantage: less time on the formulation of behavioral objectives and audio visual aids, more time on certain other topics (such as the teaching practicum, with video taping and review of each presentation) and tests and measurements.

There was a feeling that future institutes could be conducted at an accelerated pace.

Consideration should also be given to the sequence of topics and to the problem of "peaking." Evidently anti-climaxes are hard to take especially if several of them occur in the relatively short period of time allowed for institutes of this type.

Suggestions such as these--and the many other criticisms--should not obscure the fact that for a majority of the participants the Institute was a highly rewarding experience. The following comments are typical of their feelings.

> -I left feeling quite good about the program.
>
> -The Institute exceeded my expectations.
>
> -It was a busy two weeks, but I'm very glad that I went. I wouldn't take anything for that experience...

Appendix

An Evaluation of the Interview Techniques

Since this report is based on data gathered by means of telephone interviews, it seems appropriate to ask, "How valid are responses obtained in this manner?"

As noted in the report, the choice of the telephone interview method was a matter of necessity. Participants were so widely scattered that it would not have been possible to visit each of them personally. The alternative would have been a written questionnaire, which was considered highly inappropriate for the purposes of the study.

The method adopted was frankly experimental. Prior to using the method, the investigator had no way of knowing whether or not participants would be cooperative or whether they would be willing to take the time to discuss all the topics in the desired depth. After the first few interviews these doubts about the method had been dissipated. Participants readily agreed to be interviewed--most of them "on the spot"--although each was given the opportunity of setting an appointment for another time.

It was clear from the tenor of the interviews that all of the participants were deeply involved in MLA Programs. They responded eagerly when invited to describe their own programs. They seemed to be genuinely pleased to have someone from outside the medical technology field show an interest in their work and in their problems. They talked freely about the difficulties of making the transition from technologist to teacher; about the problems of organizing and presenting material; about evaluation; about their role as counselor and "mother-confessor."

The interview frequently turned into a monologue. The participants seemed to be so deeply involved in their work that they were ready to pour out their concerns and frustrations to a listener, who seemed interested and might, somehow, communicate their concerns to the "powers" who controlled the MLA Program. Even when they realized that the Institute would deal with teaching techniques, they continued to press for consideration of the objectives of the MLA Program and better communication among instructors in such programs.

There can be little doubt that the telephone technique proved highly effective as a means of gathering information about various MLA Programs, about problems faced by instructors, and about expectations they held for the Institute. It is doubtful that face-to-face interviews would have yielded any more detailed account. Indeed, it seems reasonable to hypothesize that the telephone technique actually eliminated many factors that might have been distracting. It made possible total concentration on the problem at hand.

The rapport established during the initial interviews carried over to the follow-up interviews. Participants immediately recognized the interviewer as if he were an old friend, and proceeded to discuss the Institute with the same enthusiasm and vigor that they had previously shown in discussing their own MLA Programs.

Talking to participants in their own laboratory setting seemed to have a definite advantage. Back in their familiar surroundings, they were once again authorities, in charge of a program. There was no possibility of group pressure influencing their opinions. They could look back at the Institute experience with a curious mixture of enthusiasm and disappointment; gratitude for all it had accomplished, regrets for potentialities that had not been realized.

In the second interview, as in the first, a high degree of involvement was evident. Had participants chosen to do so they could have answered politely, covered all the questions, and terminated the interview in fifteen minutes. It is certainly significant that most participants elected to discuss their experiences for thirty to fifty minutes. It was as if they wanted the interviewer to know what had taken place in Memphis and what it meant to them. This gave the interviews a highly personal flavor. Most seemed to be trying hard to give the interviewer a balanced picture. Even those who were most critical offered positive comments where they felt they could. There were a few who tended to be generally uncritical and to offer only praise, yet even these respondents were able to point to topics they would have liked to have had handled differently or in more detail.

Once again, it was the feeling of the interviewer that the impersonality of the telephone was a definite asset. When rapport had been established and the respondent had become involved, he just "rattled on" quite oblivious of time and seemingly unconcerned about the fact that his remarks were being recorded. Occasionally, a respondent would ask for reassurance that the interview would be held in confidence. Once reassured, he would speak freely. It is conceivable that there would have been greater inhibition during a face-to-face interview, because of the visible presence of the recorder and of the interviewer taking notes.

In retrospect, it is our feeling that the interview method chosen was highly appropriate and that the information we collected by this method was at least as reliable as any that might have been collected through personal interviews.

APPENDIX D

GUIDE TO CONDUCTING A TEACHER EDUCATION INSTITUTE IN THE HEALTH FIELD

Specialists in the various health fields often make a transition to teaching or training positions without the benefit of a background in educational methods. A two-week Teacher Education Institute encompassing new media, materials and techniques in the educational field can be organized to fill some of the need. The ensuing confidence and competence developed in such teachers should result in improved teaching ability and better relations with their students or trainees.

The purpose of this guide is to assist individuals or groups in the health field, such as teachers of medical laboratory assistants, in developing such courses, seminars or workshops. In addition, assistance may be obtained from your own professional organization or extension division of a university of college.

Preliminary Survey

First a survey should be made regarding the extent of need and interest to determine the feasibility of such an Institute. The project might be organized on a local, state, or regional basis, depending on the need. It might be determined whether the Institute should be conducted for only one type of profession or for a mixture of persons from health fields such as nurses, medical technologists, radiologic technologists, etc. If the initiator does not have the personnel and resources to carry out such a project, a sponsor should be found. The sponsor need not necessarily be active in designing the program, however. This could be a professional organization, educational institution, the continuing education department of a university, other health or education group, or a government agency.

Initiation of the Project

The sponsor should develop a plan compatible with its role, resources, and expectations of outside support and cooperation. After determining the necessary cooperating and advisory groups and committees, the roles of each must be clearly defined. The committee responsible for the Institute should have members representing the health specialty, general education specialists, and Institute staff. The varied backgrounds and disciplines of the members will provide the expertise for developing the project. A committee of five to eight members should be adequate for the task and small enough to be efficient.

Developing the Plan

The following points should be included in developing the plan:

1. Primary objectives of the Institute, stated in general terms.
2. Identification of appropriate groups to attend the Institute.
3. Estimate of costs to the sponsor, individuals, and cooperating groups.
4. Time schedule, depending on availability of money, purpose, and assistance from others.

Consideration should be given to the number of planning and organizational meetings, location of an educational institution or agency to conduct the Institute, publicity and mailing of announcements, processing of applications, duration of the Institute, and follow-up evaluation.

Allow sufficient time to plan and conduct an Institute. Approximately six months would be a minimum time under most circumstances, but groups with little experience and fewer resources should allot more time.

Initiation of Activities

A joint meeting of the sponsoring agent, advisory and cooperating committees should be held to:

1. Clarify the roles and objectives of the various groups.
2. Establish communication and an operational base between representatives of the various technical and educational disciplines. Formal and informal discussions over a period of time are typically necessary to gain a common understanding of purpose and direction.

Subsequent meetings of the appropriate committees would be held to:

1. Establish specific behavioral objectives, delimitations of content, criteria of satisfactory learner performance.
2. Determine criteria for selecting participants in view of Institute objectives. Decisions should be made regarding the length of the program, maximum number of participants, and whether it should be for credit or not.
3. Allow adequate time to develop the announcement of the program and timetable for accepting applications and notifying teachers selected to attend well in advance. The publicity and announcement should be specific, stating if only educational techniques will be covered or whether

the curriculum of the particular health field will also be included.

4. Determine a central focus and theme for the Institute. A common tendency is to attempt to include too much content without adequate time for coverage. Pacing must be considered. All elements of the Institute should be related and logically flow from one topic to another. The choices of breadth and depth will depend on the backgrounds and needs of the participants.

Financing a Plan and Institute

To finance such a plan and conduct an Institute, several interested organizations might contribute. Tuition could be charged for each participant, paid by either the individual or his employer.

If outside funds are needed, the sponsor should become familiar with agencies which might provide funds. Possiblitites are health groups, private foundations, and government agencies such as state departments of education and regional or state Public Health Service offices. Adequate time should be allowed to make contacts, submit a plan, await approval, and adapt to likely delays in receipt of funds. However, planning meetings should not be delayed if there is a possiblity of approval. Determine the latest possible date for funding approval to avoid failure of the plan.

What would such an Institute cost? It depends on the facility selected, faculty and consultants, and services that can be donated by the sponsoring organization and other groups. In addition to expenses for planning, it is estimated that costs for the facilities and staff for an Institute could vary from a minimum of $4,000 to a reasonable maximum of $10,000.

Costs per participant would be about $275 including:

Per diem stipend of $15 a day for 10 days	$150
Average transportation per participant	125
	$275

Therefore a complete 10-day Institute for 20 participants, exclusive of planning costs, might be conducted for:

	Minimum	Maximum
Participant costs	$5,500	$5,500
Facility costs	4,000	10,000
	$9,500	$15,500

(Facility costs include overhead, staff and consultants and operating expenses such as supplies and communications.)

Choosing a Facility to Conduct the Institute

In selecting an educational facility and determing arrangements, consider:

1. Location and various types of facilities, such as a college, university, technical school,school already training in the health field, etc.
2. Interest and willingness of the facility in conducting the Institute.

   Specify the role and division of responsibilities between the sponsor and the host facility. Include Institute staff in planning and meetings so that the intent of the planners is thoroughly understood.
3. The administrative structure and previous experience of the host institution in conducting seminars, workshops, short courses, etc.

   Determine the availability of special resource personnel and teaching facilities. Also, inexpensive housing at the facility or nearby if commuting is not possible, meals, audiovisual equipment and instructors, variety in types of classrooms or teaching facilities, such as actual or simulated laboratory or operating room with equipment.
4. Faculty to conduct the Institute.

   The availability, number required, and qualifications of faculty members should be determined. Those selected should be oriented to the particular health field involved and made aware of the education and type of work of the participants so that the curriculum will be given at the appropriate level for the learner.

Conducting the Institute

The sponsor should give specific guidance to the Institute faculty to assure that the plan is carried out most effectively. The content of the Institute planned by the faculty should be reviewed for evaluation and revision, if necessary, before acceptance by the sponsor.

Once the Institute is under way, however, the host facility and faculty must have freedom in conducting the program, providing for the continuity and integration of learning activities and making changes indicated by continuous evaluations. They have a responsibility, however, to carry out the intent and objectives of the sponsor and planning committee.

These subject matters might be considered for the Institute, but additional topics could also be appropriate:

Learning Objectives
Educational Innovations and Technology
Educational Career Professional Planning
The Roles of a Teacher
Psychological Factors of Teaching and Learning
Teaching Methods and Techniques
Communications and Group Dynamics in Teaching and Learning
Occupational Analysis and Planning for Instruction
Lesson Plans and Sequence of Teaching
Audiovisual Instruction
Practice Teaching
Testing and Evaluation

(One possible presentation is given at the end of this guide,)

Instructional materials may be suggested, developed or provided by the sponsor, committees, or faculty and participants should be requested to bring specified types of materials currently being used in teaching. In practice, a combination of all methods will probably be used, but the role and expectations of each must be understood and the sponsor should review the materials with the faculty. Materials and texts should be reviewed and selected well in advance of the Institute.

Although the Institute will stress educational techniques, direct efforts should be made to relate the material to the particular health field involved. Also, allow time for exchange of ideas and experiences among the participating teachers. Such discussions on technical content and developments may be provided outside of Institute schedule, perhaps in the evenings.

Evaluation

Evaluation is a continuous process during planning and throughout the Institute. Evaluations, recommendations, and reactions should also be obtained from the participants and Institute staff. This might begin with questionnaires the last day and may be made on a delayed schedule of four to six months to determine how the participants have related the Institute experience and new knowledge to their teaching programs.

Reporting and Dissemination of Institute Information

The Institute sponsor should report, in sources available to others in the field, the procedures, problems and outcome in conducting the Institute, along with recommendations. If possible, materials and guidelines should be available for others to review. Such reports might be made in educational media, to the profession involved, and to all groups and individuals associated with the Institute, including the participants. In addition, the professional organizations of the specialty should keep teachers informed of other opportunities for professional development.

SUGGESTED PLAN FOR A TEACHER EDUCATION INSTITUTE

THIS SUGGESTED PLAN INDICATES ONE WAY AN INSTITUTE MIGHT BE ORGANIZED. IT IS INTENDED PRIMARILY FOR PURPOSES OF PLANNING AND DISCUSSION. THE COMPLETED PLAN MUST REFLECT LOCAL NEEDS AND OBJECTIVES OF THE PLANNERS, STAFF AND FACULTY CONDUCTING THE SPECIFIC INSTITUTE.

Purpose of Institute

This Institute is designed as a professional teacher education program for an audience that has had at least three or more years of experience in a discipline in which the participant has demonstrated proven competence. The participant may or may not have had teaching experience. However, in most cases those attending do not possess the prerequisites in psychology, education, tests and testing, and similar course normally required to teach. Therefore, the Institute emphasizes the fundamental nature of human development, learning, and teaching. The instruction for the Institute is organized into the following areas:

I Basic Factors in the Teaching-Learning Situation
II Initiating Learning
III Directing Learning
IV Evaluating Learning
V Professional Development
VI Practical Work

Institute Requirements

A. Reading

1. Selected text(s)
2. Reference Reading
3. Handouts

(1. and 2. are assigned for reading in advance of attendance at the Institute)

B. Lectures

1. To present course theory and instructions concerning practical work
2. To supplement information in the required reading

C. Practical Work

1. Group discussion periods
2. Plenary sessions with reports and discussion
3. Practice teaching and critiques

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D. Evaluation

Evaluation and feedback will be a continuous process. It will be achieved through discussions, reports, critiques, and short quizzes.

E. Notebook

All participants are expected to take class notes and prepare a notebook which will serve as a reference source to the attendee when he returns to his institution.

F. Counseling

The staff will be available for individual counseling sessions by appointment during the Institute.

GUIDE FOR DISCUSSION PERIODS

Purpose. The attendee, through participation in the group discussion periods, should be able to react to the following question: "Are the principles of teaching and learning valid, adequate, and applicable guides to most effective learning?" This question should be kept in mind constantly.

The group will be divided into discussion groups. Each group will have a coordinator, a chairman, a recorder, a blackboard recorder and an observer. All positions will be rotated except that of the coordinator. The coordinator will be responsible for the rotation of assignments and will see that all members have an opportunity to serve in all capacities. Following each group meeting the chairman, recorder, and observer will submit a brief written report. The report of the chairman should answer two questions: "What did I do?" and How could I improve my leadership another time?" A copy will be turned in to the instructor.

The recorder keeps a written record of the results of the discussion, using the blackboard record as a guide. This record, in outline form, will be presented to the instructor and will serve as feedback report at plenary sessions. The recorder also participates in the discussion.

Five or ten minutes before the end of each discussion session, the observer will take charge of the group and will discuss ways of improving group procedures. The observer's evaluation report will include three items: strengths and weaknesses of performance and means of improvement. A copy of the report will be turned in to the instructor.

The coordinator will turn in a brief overall report on how well the group did in terms of "what was done," "how it was done," "strengths," "weaknesses," and any other evaluative comments.

SUGGESTED INSTITUTE SCHEDULE

I BASIC FACTORS IN THE TEACHING-LEARNING SITUATION

FIRST WEEK - FIRST DAY

9:00 - 9:50 Orientation to Institute

10:00 - 12:00 A Concept of Teaching

1. What is a concept? A philosophy?
    - a. How is it developed?
    - b. What is yours in dealing with people?
    - c. What is a sound philosophy in teaching in your health specialty?
    - d. History of educational philosophy

2. What are the necessary characteristics of a teacher?
3. Is teaching a profession? If so, what makes it a profession?

12:00 - 1:00 Lunch

1:00 - 3:00 The Group Process

1. Why work in groups, committees, etc.?
2. The group process in developing:
   - a. A teaching philosophy
   - b. Learning objectives
   - c. Curricula, instructional procedures, standards, instructional materials
   - d. Structured vs. unstructured groups
   - e. Kinds of groups
   - f. Structuring and duties
   - g. Psychological forces in groups
3. Organizing the class into groups

3:15 - 5:00 Group Work

1. Discuss and develop a functional teaching philosophy

SECOND DAY

9:00 - 10:00 Plenary Session

1. Have reports on the group work on a teaching philosophy
2. Discussion
3. Formulate a philosophy acceptable to the group that will serve as a guide

10:00 - 12:00 Writing Learning Objectives

1. Purpose and importance of job-related objectives
2. How to state objectives
   - a. Description of performance
   - b. Conditions of performance
   - c. Standards
   - d. Examples
3. Practical work in writing learning objectives

12:00 - 1:00 Lunch

1:00 - 5:00 Practical Work

1. Divide the class into smaller groups (2-5) and assign them to actually writing learning objectives on a block of required learning.

THIRD DAY

9:00 - 10:00 Plenary Session

1. Report on the work achieved on writing learning objectives
2. Discussion, evaluation, and suggestions on writing learning objectives

II INITIATING LEARNING

10:00 - 11:00 Principles of Learning
1. The learning process
2. Understanding learning ability
3. Principles of learning
4. "Kinds" of learning

11:00 - 12:00 Principles of Teaching
1. "The Teacher"
2. Personal qualities of the teacher
3. Principles of teaching

12:00 - 1:00 Lunch

1:00 - 4:00 Effective Communication in Learning-Teaching
1. Functional meaning of effective communication
2. Barriers in communication
3. Meanings are in people
4. Sending and receiving information

4:00 - 5:00 Group Work
1. Discuss:
    a. Learning problems as related to teaching in the health specialty
    b. Teaching procedures as related to the health specialty
    c. Develop five (5) questions for discussion at the next Plenary Session

FOURTH DAY

9:00 - 10:00 Plenary Session
1. Reports on discussion in learning-teaching problems and procedures
2. Response to group questions

10:00 - 12:00 Factors That Affect Learning
1. Motivation
    a. Functional meaning
    b. Functions of motivation
    c. Problems of motivation

2. Attitude
    a. Functional meaning
    b. Importance of attitude to learning-teaching
    c. Changing attitudes
3. Personality -- the teachers -- the learners
    a. Meaning of

- b. Importance of
- c. Concept of "normality"
- d. Understanding adjustment activities

4. Interests
   - a. Importance of
   - b. How to determine
   - c. Using them in counseling

12:00 - 1:00 Lunch

III DIRECTING LEARNING

1:00 - 3:00 Instructional Planning
1. Curriculum (course) planning procedures
2. Long-range planning
3. Day-to-day planning

3:00 - 4:30 Methods of Teaching -- Lecture
1. Preparation of content
   - a. General guidelines
   - b. The introduction
   - c. The body
   - d. The summary
2. Preparation for delivery
   - a. Rehearsing
   - b. Lecture approaches
   - c. Media

4:30 - 5:00 Assignments for Practice Teaching
1. Selecting the content
2. Schedule for practice teaching
3. Critiquing the practice teaching

FIFTH DAY

9:00 - 10:00 Methods of Teaching - Demonstration
1. Preparation for
2. Doing a demonstration
3. Evaluating

10:00 - 11:00 Methods of Teaching -- Problem Solving
1. Problems -- a way of life and work
2. Approaches to solving problems
3. Steps in problem solving

11:00 - 12:00 Methods of Teaching - Participating Methods
1. Role-playing
2. Demonstration of role-playing

12:00 - 1:00 Lunch

1:00 - 2:00 Methods of Teaching -- Participating Methods
1. Teaching via discussion
2. Demonstration

3:00 - 4:30 Effective Use of Audiovisual Aids
1. Projected teaching aids
2. Single dimension teaching aids
3. Three dimension teaching aids

4:30 - 5:00 Assignments For Practice Teaching
1. Summarize practice teaching requirements
2. Discussion

SECOND WEEK - FIRST DAY

IV EVALUATING LEARNING

9:00 - 11:00 Techniques of Measurement
1. Standardized tests
2. Teacher made tests
3. Oral testing and questioning techniques

11:00 - 12:00 Grades and Reporting
1. Approaches to grading
2. Determining grades
3. Approaches to reporting grades

12:00 - 1:00 Lunch

1:00 - 4:30 Practice Teaching

4:30 - 5:00 Discussion of Practice Teaching
1. Make assignments on preparation of tests

SECOND DAY

9:00 - 11:00 Evaluation Through Counseling and Guidance
1. Meaning of
2. Functions of

	3. Procedures 4. The role of the teacher in counseling
11:00 - 12:00	Evaluation Interviewing 1. Meaning of 2. Functions of 3. Procedures
12:00 - 1:00	Lunch
1:00 - 4:30	Practice Teaching
4:30 - 5:00	Discussion of Practice Teaching

THIRD DAY

V PROFESSIONAL DEVELOPMENT

9:00 - 11:00	Developing a Professional Growth Program 1. Characteristics of a teacher education program 2. Areas of concentration 3. Way to achieve growth 4. Developing your own program
11:00 - 12:00	Practice Teaching -- Evaluation 1. Have groups give tests they have prepared
12:00 - 1:00	Lunch
1:00 - 4:30	Practice Teaching
4:30 - 5:00	Plenary Session on Practice Teaching

FOURTH DAY

9:00 - 11:00	Innovations in Teaching 1. Programmed learning 2. Educational TV 3. Computer-assisted instruction 4. Multi-media
11:00 - 12:00	Practice Teaching
12:00 - 1:00	Lunch

1:00 - 3:00 Practice Teaching

3:00 - 5:00 Group Work

1. Groups will meet to review the Institute content and procedures and will develop questions for discussion at plenary session next morning.

FIFTH DAY

9:00 - 11:00 Plenary Session

1. React to all questions -- this is a learner's opportunity to get answers and reactions to questions that have not been taken care of thus far.

11:00 - 12:00 Sources of Instructional Resources

1. Professional societies
2. Publications -- magazines, etc.
3. Tests and evaluations
4. Audiovisual aids
5. Credit courses
6. Workshops and seminars
7. Other

12:00 - 1:00 Lunch

1:00 - 2:00 Institute evaluation

2:00 - 3:30 Final examination

4:00 - 4:30 Summary session -- Award certificates

Adjournment

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ABSTRACT

An interdisciplinary group of educators and health professionals developed tested and evaluated a comprehensive plan for a two-week Teacher Education Institute to upgrade instructors in health occupations education programs. The Institute was designed primarily for those who did not have teacher education backgrounds. The pilot Institute, for 21 instructors of medical laboratory assistants, incorporated recognized teaching principles with new educational methods, media, and materials to help participants acquire additional teaching skills.

The planners examined their work at every step, and evaluations of the Institute were also made by the faculty and participants, the latter taking part in pre- and post-Institute telephone interviews by the Educational Testing Service to determine the effect of the program.

It was recommended that other Institutes be held on the basis of suggestions evolving from the pilot to develop additional techniques and materials. Also recommended were workshops or conferences for multiple disciplines, involving persons from the medical health and educational fields. Although the curriculum was related to educational methods, in future Institutes the teaching techniques should have a direct relationship to the type of curriculum taught by the participants, if possible. Also, instructors should have some familiarity with the educational level and work of the participants.

The planners also developed a guide for conducting Teacher Education Institutes which may be used in other health fields. This guide is included as an appendix in the final report.